

# WELLNESS INVENTORY

## Personal Wellness Solution



## Whole Person Wellness Program

- Assess clients' level of wellbeing in 12 key dimensions.
- Discover key areas of motivation for change.
- Co-create personalized wellness action plans.
- Implement small steps for continuous improvement.
- Support a higher level of energy, health, and wellbeing.

[www.WellPeople.com](http://www.WellPeople.com)

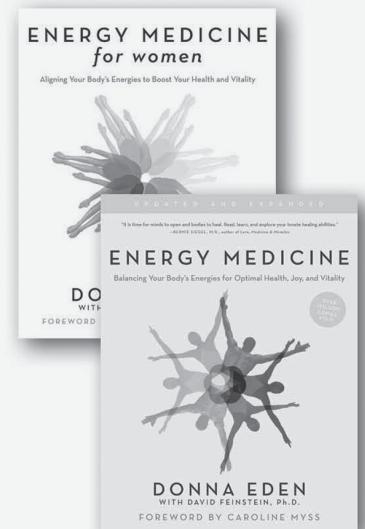
# Learn ENERGY MEDICINE

*"Energy medicine is the next great frontier in medicine!"*

— **Memhet Oz, M.D., Columbia Medical School** (speaking on Oprah)

Study the user-friendly yet sophisticated approach to energy medicine developed by Donna Eden

- To stay healthier, help overcome illness and pain, and live with greater vitality and joy
- For medical professionals to bring to their health care services
- A career for the future – available now!



*"Donna Eden's body energy work is perhaps the most brilliant, comprehensive, and effective system in the genre that I have ever seen."* —**Jean Houston, Ph.D.**

VISIT

**[www.LearnEnergyMedicine.com](http://www.LearnEnergyMedicine.com)**  
for more information about:

*"Some people have a healing presence that makes us—and our immune systems—better than before. Donna Eden is one of those rare healers."*

—Gloria Steinem

*"Donna Eden is one of the most joyous and effective pioneers in the rapidly expanding and vitally important frontier called energy medicine."*

—Christiane Northrup, M.D.

- Donna's books, DVDs, and other learning resources
- Local study groups
- Local classes and individual sessions with Donna's top certified practitioners
- Classes with Donna
- Enrolling in the comprehensive 2 Year Basic Eden Energy Medicine Certification Program plus further advanced study.

# **Energy Psychology Theory, Research, & Treatment**

A peer-reviewed professional journal dedicated to the development  
of energy psychology as an evidence-based treatment

[www.EnergyPsychologyJournal.org](http://www.EnergyPsychologyJournal.org)

*Energy Psychology: Theory, Research, and Treatment* is a peer-reviewed professional journal dedicated to reporting developments in the field of energy psychology (EP) that are of interest to health care professionals and researchers. It contains original empirical research into the efficacy of EP methods; theoretical, experimental and basic science papers illuminating the mechanisms of action of EP; clinical insights on the application of EP to various populations, and interfaces with other interventions; book reviews, and abstracts published in other journals that are of relevance to the EP field. Its goal is to further the development of EP as an evidence-based method in the healing sciences. It conforms to the editorial, stylistic, and ethical standards of the American Psychological Association (APA.org).

*Energy Psychology: Theory, Research, and Treatment* (ISSN 1949-6575) is published bi-annually (November and May) by Energy Psychology Press, PO Box 442, Fulton, CA 95439. For customer service or advertising information contact 707-237-6951 or epj@soulmedicine.net.

POSTMASTER: Send address changes to: *Energy Psychology* journal, PO Box 442, Fulton, CA 95439.

YEARLY SUBSCRIPTION RATES: \$49.95 per issue, \$99.95 per year.

AUTHOR ENQUIRIES: Submit paper copies of proposed papers to *Energy Psychology* journal, PO Box 442, Fulton, CA 95439. Include an email address and phone number for the corresponding author. All submissions should conform fully to the requirements of the *Publication Manual of the American Psychological Association*, sixth edition. Include a cover letter as specified on the "Submissions" link at [www.EnergyPsychologyJournal.org](http://www.EnergyPsychologyJournal.org), and manuscripts should be prepared in conformity with the other standards published there. Acceptance or rejection will be made via email; paper copies will not be returned. If a submission is accepted for peer review, all subsequent contact will occur via email. Deadline for Spring issue submissions is Jan 15 of each year, and July 15 for Fall issue.

REPRINTS: Back issues are available for \$49.95. Reprint ordering information may be found at [www.EnergyPsychologyPress.com](http://www.EnergyPsychologyPress.com). To order 100 or more copies of a particular paper, contact epj@soulmedicine.net.

© 2010 Energy Psychology Press. All rights reserved. This journal and the individual contributions contained in it are protected under copyright by Energy Psychology Press, and the authors, and the following terms and conditions apply to their use:

Abstracts: Abstracts in whole, and containing the title, authorship, and journal name, may be freely quoted and reproduced in any manner.

Photocopying: Single photocopies of single articles may be made for personal use as allowed by national copyright laws. Permission of the Publisher and payment of a fee is required for all other photocopying, including multiple or systematic copying, copying for advertising or promotional purposes, resale, and all forms of document delivery. Special rates are available for educational institutions that wish to make photocopies for non-profit educational classroom use.

Electronic Versions (such as PDFs). Permission of the Publisher is required to store or use electronically any material contained in this journal, including any article or part of an article, with the exception of the abstract. Except as outlined above, no part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without prior written permission of Energy Psychology Press.

#### **DISCLAIMERS:**

No responsibility is assumed by the publisher or authors for any injury and/or damage to persons or property as a matter of product liability, negligence or otherwise, or from any use or operation of any methods, products, instructions or ideas contained in the material herein. No part of this publication is meant to offer medical or psychological advice for a particular individual or condition, or a group of individuals or conditions, and no person should use any information in this publication as a substitute for medical or psychological care. These methods should only be applied under the supervision of a licensed medical or psychological healthcare professional.

Advertising material in this journal is expected to conform to the ethical standards of the American Psychological Association, which may be found at [apa.org](http://apa.org). Inclusion in this publication does not constitute a guarantee or endorsement of the quality or value of any product or service advertised, or the claims made by the advertiser, by the publisher, or its employees or associates. No liability of any nature whatsoever is assumed, accepted or implied by these parties by the inclusion of any the material in this journal. The opinions stated are those of the author(s), and do not necessarily represent the policies or views of the publisher, editors and staff.

# Contents

November 2012 • Volume 4, Number 2

About <i>Energy Psychology: Theory, Research, and Treatment</i>	7
Editorial Board	9

## **EDITORIAL ESSAY**

---

The Dark Side of Neural Plasticity <i>Dawson Church</i>	11
--	----

## **ORIGINAL RESEARCH**

---

The Effectiveness of Emotional Freedom Techniques for Optimal Test Performance <i>Sachin Jain, &amp; April Rubino</i>	15
--	----

Post-Earthquake Rehabilitation of Clinical PTSD in Haitian Seminarians <i>Jean-Michel Gurret, Claudie Caufour, Julie Palmer-Hoffman &amp; Dawson Church</i>	26
--	----

## **CASE STUDY**

---

Emotional Freedom Techniques for Dyslexia: A Case Study <i>Fiona McCallion</i>	35
---	----

## **REVIEW ARTICLES**

---

Psychosocial Genomics: A New Vision of the Psychotherapeutic Arts <i>Richard Hill</i>	47
--	----

What Does <i>Energy</i> Have to do with Energy Psychology? <i>David Feinstein</i>	59
--	----

BOOK REVIEWS	81
--------------	----

ABSTRACTS	86
-----------	----



# About

## **ENERGY PSYCHOLOGY: THEORY, RESEARCH, AND TREATMENT**

Energy psychology (EP) is an evolving and maturing field that is rapidly meeting the standards of proof for evidence-based medicine. Studies of EP have demonstrated its efficacy for a wide range of psychological and physical problems, from phobias to pain to posttraumatic stress disorder. EP is now being researched in hospital systems such as Britain's National Health Service (NHS), large private hospital chains such as Kaiser Permanente and Sutter Health, and the United States Department of Veterans Affairs (VA). By providing a rigorous, high-quality, peer-reviewed platform for the publication of research results, theory, and clinical insights, this journal provides a forum for the exchange of the key discoveries and ideas that drive the EP field forward.

—Dawson Church, PhD  
Editor, *Energy Psychology: Theory, Research, and Treatment*

### **The journal publishes work in the following areas:**

EDITORIAL ESSAYS include guest editorials from some of the best thinkers and researchers in EP today;

ORIGINAL RESEARCH provides empirical evidence for various EP methods;

CLINICAL REPORTS describe the use of EP with challenging conditions and specific populations and provide guidance for empirical research;

INTERFACES WITH OTHER THERAPIES show how EP is typically used in conjunction with other methods, such as cognitive behavior therapy (CBT), mindfulness therapy, addiction counseling, sports psychology, medicine, energy medicine, meditation, and life coaching;

REVIEW ARTICLES are theoretical papers, literature reviews, reports of innovations, and analyses that explore issues from the professional condition of EP to the physiological mechanisms of action of EP;

BOOK REVIEWS cover new and classic EP-related titles;

ABSTRACTS published in other journals relevant to EP are reprinted.



# EDITORIAL BOARD

**Audrey Brooks, PhD**

University of Arizona, Tucson

**Patricia Carrington, PhD**

Robert Wood Johnson Medical School

**Hyla Cass, MD**

Pacific Integrative Medical Clinic

**Linda Grant de Pauw, PhD**

George Washington University

**Larry Dossey, MD**

Executive Editor, *Explore*

**David Feinstein, PhD**

Energy Medicine Institute

**John Freedom,**

ACEP Research Committee

**Fred Gallo, PhD**

University of Pittsburgh Medical Center

**Gail Ironson, MD, PhD**

University of Miami

**Meg Jordan, PhD, RN**

California Institute of Integral Studies

**Stanley Krippner, PhD**

Saybrook University

**Eric Leskowitz, MD**

Harvard Medical School

**Fred Luskin, PhD**

Stanford University Forgiveness Project

**Philip Mollon, MD**

Lister Hospital

**James Oschman, PhD**

Nature's Own Research Association

**Lee Pulos, PhD**

University of British Columbia

**Ron Ruden, MD, PhD**

Yaffe, Ruden & Associates

**Norman Shealy, MD, PhD**

Holos Institutes of Health

**Phyllis Stein, PhD**

Washington University School of Medicine

**Charles Tart, PhD**

University of California at Davis

**Jack Wagoner, PhD**

University of California at Berkeley

**Berney Williams, PhD**

Energy Medicine University

---

**Dawson Church, PhD**

Editor

**Stephanie Marohn**

Executive Editor

**Deb Tribbey**

Editorial Assistant

**Medlar Publishing Solutions, India**

Typesetter

**Anne Breitenbach**

Copyeditor



# The Dark Side of Neural Plasticity

Dawson Church

Posttraumatic stress disorder (PTSD) and traumatic brain injury (TBI) are the “signature wounds” of the wars in Iraq and Afghanistan. They are invisible. Warriors who have had limbs blown off or sustained other bodily injuries (over 40,000 U.S. military personnel have been injured in these wars to date) are obviously physically impaired. The wounds of those with PTSD and TBI don’t show on the outside, yet these wounds are just as real.

The wounds of PTSD and TBI also have a characteristic that makes them quite different from other mental health problems like anxiety and depression. Depression and anxiety have a “course.” This means that symptoms get worse, and then get better again. An episode of depression lasts about six months, unless a depressed patient is put on an antidepressant prescription drug, which often leads to relapses, as well as long-term dependence, according to studies summarized in the best-selling book *Anatomy of an Epidemic* (Whitaker, 2010, p. 169). This book is so important that it should be required reading for anyone contemplating taking psychotropic drugs, or prescribing them. Studies show that an unmedicated patient with nonclinical anxiety or depression can expect to get better after a certain period of time.

Traumatic stress, however, is not the same as anxiety and depression. Symptoms often don’t show up immediately. In veterans returning home from Iraq and Afghanistan, for instance, symptoms of PTSD usually show up months or even years after the events that gave rise to the diagnosis.

An Iraq veteran who tells part of his story on the EFT introductory video on EFT Universe thought he was fine after he returned home after a tour of duty in the “Triangle of Death” in Iraq in 2004. It was several months later when a family friend remarked that he wasn’t the same person who went off to war, and he realized that he was suffering from traumatic stress, the onset of which had been delayed by a period of many months.

Even more deceptive than the delayed onset of the disease, symptoms can become worse over time. A U.S. Marines general showed me photographs of three young warriors whose MRAP had been blown up by an IED or Improvised Explosive Device in Iraq. The force of the explosion was so intense that the MRAP, which weighs 16 tons, was tossed in the air and landed upside down on its roof. Yet the vehicles are so well armored that the MRAP’s three-man crew walked out intact. In the photo, the three are grinning as they lean against the overturned hulk and light cigarettes immediately after the incident.

He showed me a second photo of one of the men taken two years later at Walter Reed Military Medical Center. In this photo, there are no grins. The man is disabled, and his body has bloated up by over 100 pounds. He has symptoms of TBI, diabetes, and other evidence of biological dysregulation. These longer-term injuries often don’t show up until well after the event, and often get worse over time.

We get frequent calls in the office of the Veterans Stress Project ([www.StressProject.org](http://www.StressProject.org)) from wives or daughters of veterans. The commonality of their stories is striking, variations on the theme of, “It’s been 40 years since Vietnam, and my husband/father is getting worse. Can you help?” Why does PTSD get worse over time, when other psychological problems usually get better, at least if the patient does not get medication?

The answer lies in the phenomenon of neuroplasticity. The ability of neural networks to repair themselves became dramatically evident in research published in the 1990s. Stroke victims, for instance, who have lost access to parts of their brains, may be able to regain all or part of their lost functionality. Their neural networks rewire around the parts of the brain damaged in the stroke, sometimes restoring full function.

The work of physician Eric Kandel, MD, showed that within one hour of repeat stimulation, the number of synaptic connections in a

neural bundle can double (Kandel, 1998). Neural pathways that are being used repeatedly add capacity, like electricians adding wiring to the circuits in a building that the occupants use most frequently. If we practice an action repeatedly, for instance, our tennis serve, we add capacity to the neural bundles that carry the information required to complete this action. If we think the same kind of thought, perhaps “I hate my job,” repeatedly, we also add capacity to the synaptic connections responsible for carrying that information through our brains.

Our wise bodies notice which information-processing channels we are using most, and increase their capacity. While this phenomenon had been noted in earlier research, the sheer scope of the rewiring operation—a doubling of capacity in just one hour—was astonishing. Kandel’s work resulted in a well-deserved Nobel Prize for medicine in 2000.

Intrigued by the speed at which the body lays down new lanes in the information superhighways of the brain, the next research question presented itself naturally to Dr. Kandel. If our bodies are assembling arrays of molecules to bulk up oft-used neural bundles, what happens to bundles we aren’t using? He found that unused neural pathways atrophy. Just as efficiently as it wires in new connections along frequently used channels, our bodies disassemble stretches of neural networks that aren’t being used. In the parsimonious economy of the brain, nothing is wasted. Roads that aren’t being used are torn apart, freeing those molecules for the construction of new capacity in frequently used highways.

The speed of demolition was as surprising as that of construction. Kandel found that, within two weeks, unused neural bundles start to be disassembled.

The implications of this are profound. Imagine that you have the option of thinking positively or negatively about your job. You can tell yourself positive stories or negative ones, and either of them can affect the structure of your brain.

Years ago I ran a large book publishing company. When I started my job as CEO, industry surveys ranked us in the bottom tier for customer service. I resolved to change that, and restructured the customer service department, which eventually employed seven people. Some of those people would tell their supervisor a very positive story about their jobs. They would be enthusiastic at the

opportunities they perceived, and appreciative of the money they earned. Other individuals, working in the adjoining cubicle, told the opposite story. They saw nothing but limitation and poor pay. Same job, same pay, but a diametrically opposite view of the job. Those with a negative perception usually didn’t last long, and after hiring positive new people, our company was eventually ranked number one for customer service in the publishing industry.

If you think a negative thought repeatedly, you literally rewire your brain. Same with a positive thought. Henry Ford was no neuroscientist, but his famous maxim foreshadows the work of pioneers like Kandel: “Whether you think you can, or think you can’t, you’re right.” Chiropractor Joe Dispenza, in his book *Breaking the Habit of Being Yourself*, stresses that we have to build the neural wiring to perceive a positive reality, in the absence of material evidence of that reality, in order to be able to perceive that reality when it shows up (Dispenza, 2012). If we haven’t built the neural capacity to perceive it, we don’t see our desired reality even when it’s right before our eyes. The old maxim “seeing is believing” has the process backward. Believing creates the neural capacity for seeing.

Neural plasticity works for us or against us. When a stroke victim regains full function by rewiring around the areas of the brain damaged by the stroke, or when a positive thinker rewrites her brain to perceive a positive outcome, we use neural plasticity to our advantage. That’s the light side of the phenomenon.

There’s a dark side to neural plasticity. When the negative thinker repeats those thoughts hundreds of times, for thousands of days, that person reinforces corresponding pathways in the brain. The plight of the PTSD sufferer is even worse. He or she isn’t choosing to think negative or disturbing thoughts. They recur spontaneously. There are 17 symptoms of PTSD described in the DSM-IV, or *Diagnostic and Statistical Manual of Mental Disorders, 4th Edition*, of the American Psychiatric Association.

Among those are intrusive thoughts, flashbacks, and nightmares. Nightmares are fear-laden dreams that interrupt our sleep. Flashbacks are scenes from the past that we experience as though they were in the present. Intrusive thoughts aren’t thoughts we choose to think, the way the negative thinker broods on what’s wrong. Like flashbacks

or nightmares, they're involuntary. We are going about our business when suddenly our mind is ambushed by an uninvited thought.

The problem with PTSD is that these three symptoms indicate that the brain is being rewired with the negative memories of trauma. After experiencing a horrible event, the brain's neural pathways are hijacked by those memories. They intrude on sleep as nightmares, into daily life as flashbacks, and into normal thought processes as intrusions. They are invasions that rob the sufferer of a normal experience, and of inner peace. Brain researcher Joseph LeDoux calls this the "hostile takeover of consciousness by [negative] emotion" (LeDoux, 2002).

The dark side of the problem is that, disturbing though these symptoms are, they aren't static. Over time, the neural bundles that carry the information related to the trauma grow in capacity. What began as a small neural bundle becomes a big neural bundle. Other neural pathways wither to support the growth of these trauma-laden information superhighways. The brain reshapes itself around the invisible wound.

Recent research shows that the parts of the brain responsible for memory and learning, for integrating new ideas and keeping our lives fresh and vibrant, start to stagnate in people suffering from PTSD. Those parts of the brain actually shrink in size. As neural resources flow into reinforcing the stress response inherent in nightmares, flashbacks, and intrusive thoughts, other parts of the brain are cannibalized to support the trauma. Even the prefrontal cortex, the part of the brain tasked with making logical executive decisions, shrinks in PTSD patients. The cumulative result of decades of brain reshaping shows up in the calls we receive at the Stress Project office with plaintive observations that Dad is getting worse 40 years after Vietnam. The reason for this is that his brain has become expert at conducting the signals of trauma, while executive and learning functions wither.

Here's where energy psychology can help both those suffering from PTSD and their family members. Research shows that 86 percent of veterans with high levels of clinical PTSD including nightmares, flashbacks, and intrusive thoughts normalize after six sessions of EFT (Church, Hawk, Brooks, Toukolehto, Wren, Dinter, & Stein, in press). A study of young people who were orphaned in the 1994 Rwandan genocide and then

learned TFT or Thought Field Therapy in a single session demonstrated that 75 percent of them recovered from clinical PTSD, and remained sub-clinical on follow-up (Sakai & Connolly, 2012).

EFT also helps family members. In a study of 218 veterans and spouses, many of the spouses themselves had PTSD after decades of living with veterans. Virtually all of these spouses normalized after a weeklong EFT retreat; 29 percent of them had clinical PTSD before the retreat. A follow-up assessment six weeks later found that only 4 percent had clinical PTSD (Church & Brooks, 2012). Other EFT studies also show that once PTSD symptoms have improved, they remain that way over time.

This implies that new synaptic pathways, initiated at the healing retreat, are subsequently being reinforced. Other scientific work in the field of memory reconsolidation shows that there are periods during a therapeutic experience when a window of "lability" opens up, and long-standing behaviors can be disrupted. Once the association between a traumatic memory and the body's stress response is broken, it stays broken. Neural networks then begin to rewire themselves to carry new and more supportive behaviors and thoughts.

In the study of veterans and spouses, the 218 participants received EFT in groups, rather than as individual therapy. There were five separate groups, and the symptom reductions followed the same trajectory in each group. This study is particularly encouraging because it demonstrates that EFT is effective when delivered to veterans in groups. With estimates of the number of veterans of the recent Middle East wars who suffer from PTSD exceeding 500,000 (Veterans Health Administration 2012), in addition to those from the Vietnam War, our society desperately needs a way of helping large numbers of people to heal quickly. Group work is more efficient than individual psychotherapy and offers the prospect of being able to treat this large cohort in a short space of time, before the neural pathways associated with PTSD have been enlarged by years of reinforcement.

Traumatic stress has been with us for as long as we've been a species. Yet we now find ourselves with the tools to address it effectively. It is also in our best financial interests to do so. A recent report finds that the lifetime cost of treating a single veteran suffering from PTSD is \$1,400,000 (Kanter, 2007). Besides the costs in human misery,

the economic costs to society, if we fail to rapidly integrate energy psychology into primary care, will be intolerable. Multiply \$1.4 million per veteran times 500,000 veterans and you get a cost of \$700 billion. That is a huge unnecessary cost in dollars piled on top of all the suffering it represents. As a society, it is essential that we choose differently. Neural plasticity has a dark side, but the good news is that the phenomenon works to our advantage if we treat it early and effectively with energy psychology.

## References

- Church, D., & Brooks, A. J. (2012). CAM and Energy Psychology techniques remediate PTSD symptoms in veterans and spouses. Paper presented at the conference of the Association for Comprehensive Energy Psychology, San Diego, CA, June 4. Submitted for publication.
- Church, D., Hawk, C., Brooks, A. J., Toukolehto, O., Wren, M., Dinter, I., & Stein, P. (in press). Psychological trauma in veterans using EFT (Emotional Freedom Techniques): A randomized controlled trial. *Journal of Nervous and Mental Disease*.
- Dispenza, J. (2012). *Breaking the habit of being yourself: How to lose your mind and create a new one*. Carlsbad, CA: Hay House.
- Kandel, E. (1998). A new intellectual framework for psychiatry? *American Journal of Psychiatry*, 155, 457.
- Kanter, E. (2007). *Shock and awe hits home*. Washington, DC: Physicians for Social Responsibility.
- LeDoux, J. (2002). *Synaptic self: How our brains become who we are*. New York: Penguin.
- Connolly, S. M., & Sakai, C. E. (2012). Brief trauma symptom intervention with Rwandan genocide survivors using Thought Field Therapy. *International Journal of Emergency Mental Health*, 13(3), 161-172.
- Veterans Health Administration, (2012). *Report on VA facility specific Operation Enduring Freedom (OEF), Operation Iraqi Freedom (OIF), and Operation New Dawn (OND) veterans coded with potential PTSD*. Accessed Oct 30 at <http://www.publichealth.va.gov/docs/epidemiology/ptsd-report-fy2012-qtr3.pdf>
- Whitaker, R. (2010). *Anatomy of an epidemic: Magic bullets, psychiatric drugs, and the astonishing rise of mental illness in America*. New York: Crown.

# The Effectiveness of Emotional Freedom Techniques for Optimal Test Performance

*Sachin Jain*

*Oakland University*

*April Rubino*

*University of Idaho*

## Abstract

Test anxiety causes, effects, and interventions have been widely studied. This study seeks to determine the efficacy of a single brief intervention—Emotional Freedom Techniques (EFT)—to support participants' ability to shift attention appropriately to achieve optimal levels of both test anxiety and test performance. The initial sample consisted of 168 undergraduates from 3 universities in the inland Northwest United States, who were randomly assigned to 3 different groups. Group 1 learned EFT, Group 2 learned Diaphragmatic Breathing (DB), and Group 3 served as a no-treatment control. Participants in the 2 experimental groups received two 2-hr lessons. The Sarason Reactions to

Tests, Symptom Assessment-45 Questionnaire, and Westside Test Anxiety Scale instruments, as well as a 5-item self-care questionnaire and a request for a qualitative list of individual, test-related concerns, were administered as pre- and posttreatment measures, with a second follow-up at the end of the semester. Subsequent analyses of variance revealed significant improvements in both the DB and EFT groups on most measures, with gains maintained on follow-up.

**Keywords:** Test anxiety, students, Diaphragmatic Breathing, EFT, Emotional Freedom Techniques

**Sachin Jain**, PhD, received his doctorate in Counselor Education and Supervision from the University of Wyoming in 2006 and is currently an assistant professor at Oakland University. **April Rubino**, MEd, LPC received her Masters degree in Rehabilitation and Community Counseling from the University of Idaho and maintains a private practice providing mind-body therapies and optimal-life counseling and coaching in Moscow, Idaho. **Correspondence:** [april@integrativemindworks.com](mailto:april@integrativemindworks.com); 3400 Robinson Park Rd. Moscow, Idaho 83843. **Acknowledgments:** This study was funded by a grant from the Association for Comprehensive Energy Psychology. **Declarations:** The authors declare that they have no conflicts of interest.

## EFT for Optimal Test Performance

Debilitating test anxiety is a complex, multi-dimensional, global problem that causes significant emotional distress and impairs optimal performance for both children and adults. It affects an estimated 33% of students (Methia, 2004, as cited in Sena, Lowe, & Lee, 2007) and can have serious, detrimental effects on mental health, self-esteem, and career options. Women and girls are disproportionately affected, as are students from minority cultures, those with learning disabilities, and low-to-high clinically anxious persons (Bodas & Ollendick, 2005; Sena et al., 2007; Zeidner & Safir, 1989).

An impressive amount of research dating back to 1952 has been devoted to understanding its causes and devising effective solutions. The original research by Sarason consisted of several studies that established the negative effects high test anxiety had on performance and then explored the theory that learned psychological drives—either task-directed drives or anxiety drives—were responsible for the differences in performance (Mandler & Sarason, 1952; S. B. Sarason & Mandler, 1952; S. B. Sarason, Mandler, & Craighill, 1952, as cited in Hembree, 1988; Stowell, & Bennett, 2010). Other approaches focused on the existence and role of debilitating (impairing) versus facilitating (helpful) anxiety for performance (Alpert & Haber, 1960; Eysenck, Derakshan, Santos, & Calvo, 2007; Rafferty, Smith & Ptacek, 1997). Liebert and Morris (1967) conceptualized test anxiety as having two axes: excessive *worry* (cognitive) and *emotionality* (physiological arousal), in which worry has the larger negative impact on performance except in people who exhibit high levels of physiological arousal with low levels of worry (Hembree, 1988; Stowell & Bennett, 2010). Other theories have

focused on the relationship between *trait anxiety* (neuroticism or personality-level anxiety) versus *state anxiety* (situation-specific), noting that high trait anxiety leads to higher state anxiety, that is, test anxiety (Chamorro-Premuzik, Ahmetoglu, & Furnham, 2007; Gaudry, Vagg, & Spielberger, 1975; Spielberger, 1972; Spielberger, Anton, & Bedell, 1976, as cited in Hembree, 1988). Two other pragmatic approaches have been offered. The first centered on identifying and addressing the deficits that contribute to debilitating test anxiety (motivation, study skills, aptitude, preparation; Stowell & Bennett, 2010; Tobias, 1985, p. 185, as cited in Hembree, 1988). The second is concerned with the attentional disruption inherent in debilitating test anxiety, whatever the cause (Eysenck et al., 2007; Sud & Sharma, 1989, 1990, 1995; Wine, 1971).

Central to test anxiety is the cognitive/emotional complex surrounding fear of doing poorly and its corollaries (how others will judge me; what it means about me) and consequences (what will happen to me as a result). The higher the perceived stakes, the more dire the corollaries—that is, if I do not perform as well as I want to on this test, it means I am (a) not well enough prepared and will be more thorough next time, (b) incapable of doing well in this field, and/or (c) stupid and not good enough to have the life I want—and the imagined consequences—it will lower my GPA, I will lose my scholarship/financial aid, I will get kicked off the team, my parents will be disappointed and pull me out of school, everyone will think I am stupid/worthless/bad and avoid me, I will be unlovable, I will be doomed to fail at everything I try, and/or I will lose everything I love or value. At its core, fear of negative evaluation and/or failure is fear of loss—loss of present and future self-esteem and well-being, loss of hope, loss of social connection and support, even loss of life itself. Meta-analyses (Ergene, 2003; Hembree, 1988; Stowell & Bennett, 2010) have identified some interventions that reduced test anxiety without improving performance but found that combinations with cognitive and behavioral components helped anxiety and performance.

One could make the distinction that fear of failure in any endeavor can either facilitate a higher level of single-minded effort that enables success or, alternatively, create a downward spiral into distracting thoughts, images, emotions, and physical sensations that make the fear of failure a

self-fulfilling prophecy. So why do some people, at least some of the time, seem to cope much better than others with the prospect of failing or being harshly judged?

The researchers in this study have hypothesized that the primary relationship between evaluative anxiety and its effect on test performance centers on an individual's ability to shift attention from what is feared (not wanted) to what *is* wanted, both before and during a test situation. Research by Eysenck and colleagues (Eysenck, 1979; Eysenck & Calvo, 1992; Eysenck et al., 2007), Wise (1971), I. G. Sarason (1984), and Sud and Sharma (1989, 1990, 1995); Zinta (2008) has supported this view. Eysenck's Attentional Control Theory describes the relationship between cognition and anxiety and "assumes that anxiety impairs the efficient functioning of the goal-directed attentional system and increases the extent to which processing is affected by the stimulus-driven attentional system" (p. 336), particularly threat-related stimuli. They concluded that "Adverse effects of anxiety on processing efficiency depend on two central executive functions: inhibition and shifting." They have noted that anxiety may *not* be detrimental when it leads to "compensatory strategies" (2007, p. 336).

Using this assumption, the most beneficial interventions to reduce test anxiety distress and simultaneously create optimal performance would offer attentional enhancement interventions that improve one's ability to shift quickly from a fear response to a calm, focused, solution-oriented state and to maintain that state as long as needed. Extensive research has indicated that behavioral, including relaxation alone, or cognitive-behavioral combinations were most effective in relieving test anxiety; cognitive, attentional, or study-skill trainings alone did not reduce test anxiety. Performance was enhanced by the addition of study-skill and attentional training to cognitive and cognitive-behavioral interventions, but it was notably unimproved by relaxation training alone (Ergene, 2003; Hembree, 1988; Rovira, Fernandez-Castro, & Edo, 2005; Tryon, 1980). The ideal kind of intervention would be one that addresses cognitive components as well as emotional arousal and is simple, brief, and easily learned and can be self-administered.

This study sought to determine and compare the efficacy of a brief, intervention known as Emotional Freedom Techniques (EFT) to reduce

debilitating test anxiety and improve performance. A study by Sezgin and Ozcan (2009) compared the use of EFT with Progressive Muscle Relaxation in reducing test anxiety and improving test scores in a high school-age sample. There was a significant decrease in anxiety and improvements in test scores from both methods, though EFT provided a much greater effect on reducing anxiety. A pilot study by Benor et al. (2009) compared EFT, Wholistic Hybrid derived from EMDR and EFT (WHEE), and cognitive behavioral therapy (CBT) in the treatment of test anxiety in a college student sample and found equally promising results with only two sessions of EFT or WHEE compared with five sessions of CBT.

EFT can be used in dyadic therapeutic interventions and can also be easily taught for self-administration. It offers a form of desensitization, cognitive repatterning, and anxiety and arousal reduction using a combination of acupressure tapping and guided mental focus. EFT addresses self-concept and self-acceptance, then directs the subject's attention to whatever is feeling problematic as several acupressure points on the face, body, and hands are tapped sequentially. This process allows the subject to release discomfort related to the perceived problem, shifting attention from what is not wanted to what is preferred instead. A parallel intervention was also provided to a different group of subjects that utilized identical instruction in mental focus but was combined with a different relaxation-inducing practice.

## Method

### Participants

The current population of interest is college students, both because of their relatively high accessibility and the importance of performance in college to career opportunities and life success. Students were solicited through posted flyers, by the recruitment of professors of difficult subjects who were asked to make announcements in their classes, through contact with on-campus counseling and testing centers and other student assistance offices responsible for helping test-impaired students, and through soliciting emails sent out by those offices to students using their services.

The initial sample consisted of 168 undergraduate students from three colleges or universities in the inland Northwest, drawn at the beginning of the fall semester. In the second round of data

collection 46 participants completed the survey. After the third round, data from 40 participants were found to be complete. Most of the participants were Caucasian (90%), 14 were men and 26 were women, and 90% were between the ages of 18 and 30 years.

### Measures

Participants were asked to rate their level of self-care, using a five-item Likert scale, in the areas of good nutritional practices, adequate rest, regular exercise, and relaxation practices. This scale was created for the study and used because self-care factors have a recognized impact on physical, emotional, and cognitive function and, in the researchers' opinion, ought to be considered when evaluating causes and/or correlations between the interventions being studied and the cognitive/emotional responses measured or reported. The questions, answered from 1 (*not at all*) to 5 (*extremely*), are as follows:

How well do you do in:

- Eating a healthy, nutritionally balanced diet?
- Getting adequate rest on a regular basis?
- Getting a healthy amount of exercise each week?
- Practicing healthy forms of relaxation on a regular basis?

Subjects were also asked to create a qualitative list of their particular issues that contribute to their test anxiety, trouble studying, and less-than-optimal test performance. This list was used by the participants as a focal tool while practicing their protocol.

The Sarason Reactions to Tests (RTT) inventory, a 40-item, Likert-style instrument, was used pre- and posttest to quantitatively assess self-reported levels of test anxiety. The higher the participants' score, the greater their anxiety. The goal of this instrument is to measure components of test anxiety relevant to performance impairment. Changes in anxiety scores ought to be predictive of improvements in performance scores. The RTT measures four different components that typically interfere with test-taking success: Test Irrelevant Thinking, Bodily Symptoms, Tension, and Worry. I. G. Sarason (1984) has provided a group of studies that give reliability and validity data for this scale. Cronbach's alpha for these scales were found to be .92, .79, .92, and .85, respectively.

Validity was found to be moderate but significant, with high scores on the RTT inversely proportional to test performance (Benson & Bandalos, 1992).

The Symptom Assessment-45 Questionnaire (SA-45), a brief form of the Symptom Checklist 90, assesses general psychiatric symptoms. Nine domains assessed by SA-45 are Anxiety, Depression, Interpersonal Sensitivity, Hostility, Obsessive-Compulsive, Psychoticism, Paranoid Ideation, Somatization, and Phobic Anxiety. SA-45 has adequate reliability and validity (Davison, Bershadsky, Bieber, Silversmith, Maruish, & Kane, 1997). The first author analyzed the SA-45 cumulative scores.

Westside Test Anxiety Scale is a brief, 10-item instrument. Six items of the scale assess impairment, and four items measure worry (Driscoll, 2007). This scale has adequate reliability and validity. The higher the participants' score, the greater their test anxiety.

None of the measures employed in this study were used as inclusion or exclusion criteria for subjects.

## *Design*

This study was conducted as a mixed method, pretest/posttest experimental design.

## *Procedures*

After Institutional Review Board approval was secured from the schools, a total of 168 college students were recruited during the first three weeks of the fall semester from three major institutes of higher education in Pacific Northwest. Participants signed up and provided all required assessment data and permissions to collect and use their responses and academic course grades through a password-protected website, following links posted on a dedicated website offering information about the study. After participants gave informed consent online, they completed a brief, Likert-scale questionnaire about their self-care habits regarding nutrition, rest, exercise, and relaxation, as well as three pretest assessment instruments: the 40-item Sarason RTT Scale, the 10-item Westside Test Anxiety Scale, and the SA-45. They were also asked to create a qualitative list of the problems as they see them that feed their anxiety or interfere with their studying or test-taking

success. Students were randomly assigned to three different groups.

During the 4th week of the semester, Groups 1 and 2 had two 2-hr training sessions in the use of EFT and in the practice of Diaphragmatic Breathing, respectively. The second author was the instructor, a clinician trained and certified in both EFT and yoga therapy. Group 3 served as a control, receiving no intervention in this initial phase of the study.

EFT utilizes acupressure tapping on a series of points on the skin in combination with guided mental focus directed at different aspects of a problem and self-statements about what one is aware of that feels bad. This intervention contains elements of systematic desensitization, cognitive reprocessing, and self-concept improvement via statements of intentional self-acceptance, relaxation triggering, situational acceptance, and reframing. The Diaphragmatic Breathing protocol utilizes slow, measured breathing for 10 breath cycles at a time while focusing on aspects of a particular problem. This intervention, influenced by the traditional yogic practice of Pranayama (breath control), also contains elements of systematic desensitization and cognitive reprocessing, initiating and pairing a relaxation response with a disturbing thought or belief.

Students in Groups 1 and 2 were asked to apply their interventions during Weeks 5 through 8 to assist with studying and test-taking for their most challenging, content-rich course. They were instructed to practice their learned intervention for 5 min prior to each study session and again for 5 min in the hour before taking a test. The protocol groups used their self-created, qualitative list of problems as the content for their intervention practice. Midterm exams signaled the end of the mandated practice period, and all three groups completed the surveys again posttest and declared any changes in self-care habits as measured by the initial questionnaire.

At the end of the semester, all remaining participants completed one final round of the surveys, providing a second set of posttest data and additional qualitative information about the perceived usefulness of the protocols. Pre-and posttest scores on the instruments were compared. Previous research has suggested that the protocol groups are likely to show lower levels of test anxiety post-treatment compared with the control group, and

the researchers expected to find that one or both would exhibit the desired combination of a significant increase in test performance paired with a significant decrease in anxiety relative to that of the other two groups.

## Results

After the entire sample completed the pretest, students from each scoring level of the RTT Scale were randomly assigned to three different groups. Sachin Jain conducted an analysis of variance (ANOVA) and found no significant baseline differences between the three groups on the demographic and dependent variables. Gain scores were computed by subtracting the pretest scores from posttest scores. Sachin Jain conducted the statistical analysis.

### *Posttest 1—Pretest*

Group means and standard deviations for all three groups are shown in Table 1. Self-care gain scores between pretest and posttest 1 measures are shown in Table 2, and were analyzed with ANOVA comparing groups (Treatment 1, tapping; Treatment 2, breathing and control), see Table 3. There was a significant difference between the treatments and control groups' gain scores of -1.73 (Tapping), 1.67 (Breathing), and -1.13 (Control)  $p < .05$ . Using a post-hoc Sheffe's test, we found that the breathing group had a significantly higher increase in the self-care gain scores than did the tapping or control groups. There was no significant difference in the gain scores for the participants in tapping and control groups.

RTT gain scores between pre- and posttest 1 measures were analyzed with ANOVA comparing groups (Treatment 1, tapping, Treatment 2, breathing and control), see Table 3. There was a significant difference between the treatment and control groups' gain scores of -5.55 (tapping), -10.50 (breathing), and 7.01 (control) ( $p < .05$ ). Using a post-hoc Sheffe's test, we found that the breathing group had a significantly higher decrease in the levels of test anxiety than the tapping or control groups. There was also a significant decrease in the levels of test anxiety for the participants in tapping group as compared to the control groups. The most effective intervention in decreasing test anxiety was breathing, followed by tapping. Anxiety increased in the participants of the control group.

Using ANOVA, we found no mean gain score differences for groups for Westside and SA-45 ( $p > .05$ ).

### *Posttest 2—Pretest*

Self-care gain scores between pre- and posttest 2 measures are shown in Table 4, and were analyzed with ANOVA comparing groups (Treatment 1, tapping; Treatment 2, breathing and control), see Table 5. There was a significant difference between the treatment and control groups' gain scores of -0.91 (tapping), 2.00 (breathing), and -0.74 (control) ( $p < .05$ ). Using a post-hoc Sheffe's test, we found that the breathing group had a significantly higher increase in the self-care gain scores than did the tapping or control groups. There was no significant difference in the gain scores for the participants in tapping and control groups.

RTT gain scores between pre- and posttest 2 measures were analyzed with ANOVA comparing groups (Treatment 1, tapping, Treatment 2, breathing and control), see Table 3. There was a significant difference between the treatment and control group's gain scores of -6.00 (tapping), -15.67 (breathing), and 7.83 (control) ( $p < .05$ ). Using a post-hoc Sheffe's test, we found that the breathing group had a significantly higher decrease in the levels of test anxiety than the control group. There was also a significant decrease in the levels of test anxiety for the participants in tapping group as compared with the control group. The most effective intervention in decreasing test anxiety was breathing, followed by tapping. Anxiety increased in the participants of the control group. After the third round, data from only 40 out of 168 participants who completed the informed consent were found to be complete. There were no adverse events reported.

Using ANOVA, we found no mean gain score differences for groups for Westside and SA-45 ( $p > .05$ ).

## *Qualitative Measures*

Table 6 summarizes the response from participants in their first and second rounds of posttests, respectively.

The following statements were taken from participants asked to describe any benefits they noticed, either academic or personal, from the practice of their protocol. Comments provided by

**Table 1:** Group Means and Standard Deviations for the Dependent Variables

Variable	Self-Care			Westside Test Anxiety Scale			Symptom Assessment-45			Sarason Reactions to Tests		
	N	M	SD	N	M	SD	N	M	SD	N	M	SD
<b>Tapping</b>												
Pre-	11	13.64	2.73	11	29.64	6.07	11	78.18	11.20	11	79.36	8.96
Post 1-	11	11.91	2.63	11	27.18	6.91	11	79.00	9.88	11	73.81	19.06
Post 2-	11	12.73	2.90	11	27.09	7.02	11	75.45	9.34	11	73.36	18.23
<b>Breathing</b>												
Pre-	6	12.83	2.93	6	28.17	7.96	6	57.83	7.83	6	72.33	13.84
Post 1-	6	14.5	2.17	6	23.50	8.89	6	58.83	7.70	6	61.83	13.42
Post 2-	6	14.83	2.71	6	22.67	9.73	6	53.00	6.63	6	56.67	15.50
<b>Control</b>												
Pre-	23	13.43	2.52	23	29.96	6.65	23	74.04	19.33	23	76.43	19.81
Post 1-	23	12.30	2.34	23	29.61	6.14	23	77.61	23.39	23	83.56	23.93
Post 2-	23	12.70	2.36	23	30.17	7.06	23	78.74	24.09	23	84.26	24.42

**Table 2:** Analysis of Gain Scores From Pretest to Posttest 1

Variable	Group	N	M	SD
Self	Tapping	11	-1.73	2.37
	Breathing	6	1.67	1.51
	Control	23	-1.13	2.38
	Total	40	-0.88	2.48
West-side	Tapping	11	-2.45	6.73
	Breathing	6	-4.67	9.52
	Control	23	-0.35	3.84
	Total	40	-1.58	5.84
SA-45	Tapping	11	0.82	11.44
	Breathing	6	1.00	3.35
	Control	23	3.57	13.34
	Total	40	2.43	11.71
RTT	Tapping	11	-5.55	17.63
	Breathing	6	-10.50	16.23
	Control	23	7.13	12.04
	Total	40	1.00	15.80

Note. Self: post-pre = + ; Westside (Westside Test Anxiety Scale): post-pre= - ; SA-45 (Symptom Assessment-45 Questionnaire): post-pre = - ; RTT (Reactions to Tests): post-pre = -

**Table 3:** ANOVA Comparing Groups (Treatment 1-Tapping, Treatment 2-Breathing and Control) From Pretest to Posttest 1

Dependent Variable	df	F	P
Self	2	4.646	.016
West-side	2	1.510	.234
SA-45	2	0.247	.782
RTT	2	5.175	.010

Note. Westside = Westside Test Anxiety Scale; SA-45 = Symptom Assessment-45 Questionnaire; RTT = Reactions to Tests.

**Table 4:** Analysis of Gain Score From the Pretest to Posttest 2

Variable	Group	N	M	SD
Self	Tapping	11	-0.91	1.38
	Breathing	6	2.00	1.67
	Control	23	-0.74	2.60
	Total	40	-0.38	2.38
Westside	Tapping	11	-2.55	6.86
	Breathing	6	-5.50	10.82
	Control	23	0.22	5.53
	Total	40	-1.40	6.99
SA-45	Tapping	11	-2.73	11.15
	Breathing	6	-4.83	6.62
	Control	23	4.70	15.94
	Total	40	1.23	14.07
RTT	Tapping	11	-6.00	16.42
	Breathing	6	-15.67	21.64
	Control	23	7.83	15.14
	Total	40	0.50	18.50

Note. Self: post-pre = + ; Westside (Westside Test Anxiety Scale): post-pre = - ; SA-45 (Symptom Assessment-45 Questionnaire): post-pre = - ; RTT (Reactions to Tests): post-pre = -

**Table 5:** ANOVA comparing groups (treatment1-Tapping, treatment 2-Breathing and control) from the pre-test to post-test 2

Dependent Variable	df	F	p
Self	2	4.084	.025
Westside	2	1.878	.167
SA-45	2	1.756	.187
RTT	2	5.995	.006

Note. Westside = Westside Test Anxiety Scale; SA-45 = Symptom Assessment-45 Questionnaire; RTT = Reactions to Tests.

**Table 6:** Posttests

	Not at all	Somewhat	Moderately	Very	Extremely
First round of posttests					
How helpful was this practice in improving your ease of studying?	1	10	6	4	0
Your comfort with test-taking?	3	6	6	0	4
Your scores on tests?	6	9	3	2	0
Second round of posttests					
How helpful was this practice in improving your ease of studying?	2	10	2	2	1
Your comfort with test-taking?	3	11	3	0	1
Your scores on tests?	5	6	5	1	0

both EFT and Diaphragmatic Breathing subjects indicated an enhanced sense of calmness, decrease in anxiety, and evidence of improved focus during study sessions and exams. Following are the participants' quotes:

### *Posttest 1*

"I feel more relaxed when doing my homework, but I still feel some issues with time when taking tests."

"I don't attribute any academic benefits. My scores were the same as before. I was a little less stressed and more relaxed during the test."

"Using the technique helped me get through the reading I did before the test, which I think helped me perform as well as I did on the test."

"I felt more at ease taking tests, and in a class that wasn't for this study I received a 92% using this protocol."

"It did relax me a bit more, I didn't really study all that much though ... But it helped me sleep and relax before the test. That was great."

### *Posttest 2*

Quotes reflecting themes similar to Posttest 1 are the following:

"I recognize that my test grades went up, but because of my inconsistency with studying under the protocol or even practicing the tapping protocol before tests (in front of classmates), I do not know if we can consider this a direct causal relationship. The peace I felt after practicing the protocol and while studying helped a lot though!"

"I get less distracted during tests than I did before. The only thing I haven't been able to tap away the worry for is getting into graduate school."

"I credit my practice of the protocol as the sole reason I now can take tests without caring about how my progress is comparing to the others in the room."

"I was stressing out during my last psychology exam, when I just started breathing like the protocol said to, and felt calmer."

"After finishing the test, I found out that I received a 96 percent on the test."

"My confidence increased a little."

"It helped me relax and remember."

"The protocol did make me feel more relaxed in general, so it may have helped when I took the tests."

"It is easier to remind myself to focus a little sooner when day dreaming than before."

## **Discussion**

The results of the study support that both tapping and breathing interventions decreased test anxiety, while focusing on current negative cognitive/emotional states to facilitate neuropsychological repatterning. The protocols given for EFT and for Diaphragmatic Breathing are easy enough for students to follow and administer, therefore, school counselors can help students with test anxiety through educating them in the techniques. EFT and the similar Diaphragmatic Breathing protocol used in this study can therefore help the estimated 33% of students that are affected by test anxiety (Methia, 2004, as cited in Sena et al., 2007), promoting positive mental health, increasing self-esteem and promoting larger career options.

## *Limitations and Recommendations*

Participants for the study were recruited from three different colleges (a 4-year college and two state graduate universities) in the Pacific Northwest. The high dropout rate between the initial and final sample resulted in small group sample sizes for both experimental groups, impairing the generalizability of the findings. Two subsequent replications with modifications in the administration of protocol of the study have been completed in the same location, and the researchers will continue the analysis to improve the validity of the findings. However, replications of this study in other geographic locations will improve its external validity.

## **References**

- Alpert, R., & Haber, R. N. (1960). Anxiety in academic achievement situations. *Journal of Abnormal and Social Psychology*, 61, 207–215. doi:10.1037/h0045464  
Benson, J., & Bandalos, D. (1992). Second-order confirmatory factor analysis of the Reactions to Tests Scale with cross

- validation. *Multivariate Behavioral Research*, 27, 459–487. doi:10.1207/s15327906mbr2703\_8
- Benor, D. J., Ledger, K., Toussaint, L., Hett, G., & Zaccaro, D. (2009). Pilot study of Emotional Freedom Techniques, wholistic hybrid derived from Eye Movement Desensitization and Reprocessing and Emotional Freedom Technique, and cognitive behavioral therapy for treatment of test anxiety in university students. *Explore: The Journal of Science and Healing*, 5, 338–340.
- Bodas, J., & Ollendick, T. (2005). Test anxiety: A cross-cultural perspective. *Clinical Child and Family Psychology Review*, 8, 65–88. doi:10.1007/s10567-005-2342-x
- Chamorro-Premuzik, T., Ahmetoglu, G., & Furnham, A. (2007). Little more than personality: Dispositional determinants of test anxiety (the Big Five, core self-evaluations, and self-assessed intelligence). *Learning and Individual Differences*, 18, 258–263. doi:10.1016/j.lindif.2007.09.002
- Davison, M. L., Bershadsky, B., Bieber, J., Silversmith, D., Maruish, M. E., & Kane, R. L. (1997). Development of a brief, multidimensional, self-report instrument for treatment outcomes assessment in psychiatric settings: Preliminary findings. *Assessment*, 4, 259–275.
- Driscoll, R. (2007). *Westside Test Anxiety Scale validation*. Retrieved from ERIC database. (ED495968)
- Ergene, T. (2003). Effective interventions on test anxiety reduction: A meta-analysis. *School Psychology International*, 24, 313–328. doi:10.1177/01430343030243004
- Eysenck, M. W. (1979). Anxiety, learning, and memory: A reconceptualization. *Journal of Research in Personality*, 13, 363–385. doi:10.1016/0092-6566(79)90001-1
- Eysenck, M. W., & Calvo, M. G. (1992). Anxiety and performance: The processing efficiency theory. *Cognition and Emotion*, 6, 409–434. doi:10.1080/02699939208409696
- Eysenck, M., Derakshan, N., Santos, R., & Calvo, M. (2007). Anxiety and cognitive performance: Attentional control theory. *Emotion*, 7, 336–353. doi:10.1037/1528-3542.7.2.336
- Gaudry, E., Vagg, P., & Spielberger, C. D. (1975). Validation of the state-trait distinction in anxiety research. *Multivariate Behavioral Research*, 10, 331–341. doi:10.1207/s15327906mbr1003\_6
- Hembree, R. (1988). Correlates, causes, effects, and treatment of test anxiety. *Review of Educational Research*, 58, 47–77.
- Liebert, R. M., & Morris, L. W. (1967). Cognitive and emotional components of test anxiety: A distinction and some initial data. *Psychological Reports*, 20(PT. 1), 975–978. doi:10.2466/pr0.1967.20.3.975
- Mandler, G., & Sarason, S. B. (1952). A study of anxiety and learning. *Journal of Abnormal and Social Psychology*, 47, 166–173. doi:10.1037/h0062855
- Rovira, T., Fernandez-Castro, J., & Edo, S. (2005). Antecedents and consequences of coping in the anticipatory stage of an exam: A longitudinal study emphasizing the role of affect. *Anxiety, Stress & Coping*, 18, 209–225. doi:10.1080/10615800500134654
- Sarason, I. G. (1984). Stress, anxiety, and cognitive interference: Reactions to tests. *Journal of Personality & Social Psychology*, 46, 929–938. doi:10.1037/0022-3514.46.4.929
- Sarason, S. B., & Mandler, G. (1952). Some correlates of test anxiety. *Journal of Abnormal and Social Psychology*, 47, 810–817. doi:10.1037/h0060009
- Sarason, S. B., Mandler, G., & Craighill, P. G. (1952). The effect of differential instructions on anxiety and learning. *Journal of Abnormal and Social Psychology*, 47(Suppl. 2), 561–565.
- Sena, J. D. W., Lowe, P. A., & Lee, S. W. (2007). Significant predictors of test anxiety among students with and without learning disabilities. *Journal of Learning Disabilities*, 40, 360–376. doi:10.1177/00222194070400040601
- Sezgin, N., & Özcan, B. (2009). The effect of Progressive Muscular Relaxation and Emotional Freedom Techniques on test anxiety in high school students: A randomized controlled trial. *Energy Psychology: Theory, Research, and Treatment*, 1(1), 23–30. doi:10.9769.2009.1.1.NS
- Spielberger, C. (1972). Anxiety as an emotional state. In C. D. Spielberger (Ed.), *Anxiety: Current trends in theory and research* (Vol. 1, pp. 23–49). New York, NY: Academic Press.
- Spielberger, C., Anton, W., & Bedell, J. (1976). The nature and treatment of test anxiety. In M. Zuckerman & C. C. Spielberger (Eds.), *Emotion and anxiety: New concepts, methods, and applications* (pp. 317–345). Hillsdale, NJ: Erlbaum.
- Stowell, J. R., & Bennett, D. (2010). Effects of online testing on student exam performance and test anxiety. *Journal of Educational Computing Research*, 42, 161–171. doi:10.2190/EC.42.2.b
- Sud, A., & Sharma, S. (1989). Test anxiety, intrusive thoughts, and attentional process. *Journal of Personality and Clinical Studies*, 5, 139–145.
- Sud, A., & Sharma, S. (1990). Two short-term, cognitive interventions for the reduction of test anxiety. *Anxiety Research*, 3, 131–147. doi:10.1080/08917779008248748
- Sud, S., & Sharma, S. (1995). Effects of test anxiety, ego stress, and attentional skills training on arithmetic reasoning: An experimental evaluation of a brief counseling strategy. *Anxiety, Stress & Coping: An International Journal*, 8, 73–84. doi:10.1080/10615809508249365
- Tobias, S. (1985). Test anxiety: Interference, defective skills, and cognitive capacity. *Educational Psychologist*, 20, 135–142. doi:10.1207/s15326985ep2003\_3
- Tryon, G. S. (1980). The measurement and treatment of test anxiety. *Review of Educational Research*, 50, 343–372.
- Wine, J. (1971). Test anxiety and direction of attention. *Psychological Bulletin*, 76, 92–104. doi:10.1037/h0031332
- Zeidner, M., & Safir, M. P. (1989). Sex, ethnic, and social differences in test anxiety among Israeli adolescents. *Journal of Genetic Psychology*, 150, 175–185. doi:10.1080/00221325.1989.9914589
- Zinta, R. L. (2008). Effectiveness of guided mastery treatment for reducing test anxiety among self-efficacious students. *Journal of the Indian Academy of Applied Psychology*, 34, 233–239.

Description of EFT protocol: Acupressure tapping combined with guided mental focus and self-statements about what one is aware of that feels bad. This intervention contains elements of systematic desensitization, cognitive reprocessing, and self-concept improvement via statements of intentional self-acceptance, relaxation triggering, situational acceptance and reframing.

Acupressure tapping is based on the ancient Chinese medicine concept of negative emotion and disease as manifestations of disruptions in the free flow of energy through meridian pathways. One can alternately appreciate the potential of applying kinesthetic stimulation to different neurologically-sensitive points on the body while focusing on current negative cognitive/emotional states to facilitate neuropsychological re-patternning.

Description of Diaphragmatic Breathing protocol: Slow, measured, conscious breathing for ten breath cycles while focusing on aspects of a particular problem. This intervention, influenced by the traditional Yogic practice of Pranayama, also contains elements of systematic desensitization and cognitive reprocessing, initiating and pairing a relaxation response with a disturbing thought or belief

### EFT Protocol

1. **Assess your level of distress about the problem you are addressing...** from 0 (*no distress*) to 10 (*extreme distress*).
2. **The Setup Statement...** Repeat a targeted self-acceptance affirmation 3 times while continuously tapping the Karate Chop point. As much as possible, avoid global statements. Zero in on the worst part of the thing that is bothering you. “*Even though I [have this problem, feel this pain--whatever is bothering you], I accept myself*” (or “*I want to be okay with me*” or “*I deeply and completely accept myself*”—whichever is true for you right now on this issue).
3. **Create an appropriate Reminder Phrase...** that keeps you focused on the specific part of the problem you are addressing.
4. **The Sequence...** Tap about 7 times on each of the following energy points **while repeating the Reminder Phrase at each point**. **FACE:** Eye Brow, Side of Eye, Under Eye, Under Nose, Chin; **BODY:** Collar Bone, Under Arm, Ribs; **HAND:** Thumb, Index Finger, Middle Finger, Pinkie, Karate Chop.
5. **Assess distress level...** If same or higher, clarify specific aspect causing distress and repeat steps 2–4. with modified Reminder Phrase reflecting revised topic of focus. **If distress is lower but still not gone,**
6. **The Sequence (again)...** Repeat step 4 until distress about the problem is gone.
7. **Assess distress regarding original problem...** If different aspect of problem is still troubling, create a new Setup Statement and Reminder Phrase and repeat steps 4–5. as needed until problem feels resolved.
8. **Go on to the next problem...** and repeat steps 1–8. until you have addressed all relevant problems.

### Diaphragmatic Breathing Protocol

1. Sit comfortably upright with your spine lengthened. Make sure you have a good support behind your back if you need one. Arrange your legs so they are also comfortable and relaxed.
2. Place one hand on your stomach. Notice how much the hand on your stomach is moving as you consciously slow your breath down a little. Begin to count to 4 while you inhale, pause, then count to 4 as you exhale, and pause. When you are comfortable with that slow, easy breathing pattern...
3. Bring to mind the problem you want to address.
4. Assess your level of distress about the problem you are addressing, from 0 (*no distress*) to 10 (*extreme distress*).

5. Create an appropriate Reminder Phrase that keeps you focused on the specific part of the problem you are addressing.
6. Repeat the Reminder Phrase silently with each breath for ten breath cycles.
7. Assess distress level again. If the same or higher, clarify specific aspect causing distress and repeat steps **5.–6** with modified Reminder Phrase reflecting revised topic of focus.
8. Assess distress regarding original problem ... If different aspect of problem is still troubling, create a new Reminder Phrase and repeat steps **5.–7** as needed until problem feels resolved.
9. Go on to the next problem and repeat steps **4.–9** until all relevant problems have been addressed.

# Post-Earthquake Rehabilitation of Clinical PTSD in Haitian Seminarians

Jean-Michel Gurret, Claudie Caufour  
Energies Psy Sans Frontières

Julie Palmer-Hoffman, Dawson Church  
Foundation for Epigenetic Medicine

## Abstract

Following the 2010 earthquake, 77 male Haitian seminarians were assessed for posttraumatic stress disorder (PTSD) using the PTSD Checklist (PCL). Forty-eight (62%) exhibited scores in the clinical range ( $> 49$ ). The mean score of the entire sample was 54. Participants received 2 days of instruction in Emotional Freedom Techniques (EFT). Following the EFT training, 0% of participants scored in the clinical range on the PCL. A paired *t*-test analysis of the pre–post PCL scores indicated a statistically

significant decrease ( $p < .001$ ), to a mean of 27 at the posttest. Posttest PCL scores decreased by an average of 72%, ranging between a 21% reduction and a 100% reduction in symptom severity. These results are consistent with other published reports of EFT's efficacy in treating PTSD symptoms in traumatized populations, such as war veterans and genocide survivors.

**Keywords:** Haiti, posttraumatic stress disorder, PTSD, EFT, Emotional Freedom Techniques

**Jean-Michel Gurret**, is an EFT trainer based in Lyon, France, and the president of IFPEC, the French Institute of Energy Psychology. **Claudie Caufour** is a psychotherapist and president of Energies Psy Sans Frontières. **Julie Palmer-Hoffman**, MA, is a Fellow of the Foundation for Epigenetic Medicine, Santa Rosa, CA. **Dawson Church**, PhD, directs research at the Foundation for Epigenetic Medicine. **Correspondence:** jean.michel@gurret.fr; 8 Rue Challemel Lacour, 69007, Lyon, France. These data were presented at the professional conference “Veterans, Treatment, and Trauma” at Omega Institute, Rhinebeck, New York, Oct 12, 2012. **Disclosures:** The authors receive income from EFT publications and training.

The 7.0-magnitude earthquake that struck Haiti on the afternoon of January 12, 2010, left an estimated 200,000 or more people dead and 1.5 million homeless (Doc Zone, 2011). With half of Haiti’s population children under the age of 18 (Doc Zone, 2011), a proportionate number of those made vulnerable by the earthquake were children, many of whom lost a parent or guardian in the disaster. Prior to the earthquake, estimates of the number of orphans in Haiti ranged between 350,000 (Arce & O’Brien, 2011; Balsari, Lemery, Williams, & Nelson, 2010) and 380,000 (Belkin, 2010; Friends of the Orphans, n.d.; Seabrook, 2010; Wylie, 2011); following the earthquake, those numbers swelled to as many as a million children (Arce & O’Brien, 2011;

Seabrook, 2010; Sequera & Fox, 2010). Reliable estimates are complicated by the widespread presence of unregulated and unsupervised orphanages, which account for 80% of Haiti’s orphanage system (Doc Zone, 2011; Panorama, 2010); poor or nonexistent record-keeping mechanisms in the immediate aftermath of the earthquake, which may have led to inflated estimates of orphaning among children temporarily separated or displaced from their families in the upheaval (Balsari et al., 2010); and the extreme poverty endemic to much of Haiti’s population, which can lead parents unable to afford to care for their children to temporarily place them in the custody of “orphanages” (Balsari et al., 2010; UNICEF, 2010).

From early media reports in the aftermath of the disaster to retrospective reports casting a broader look at the earthquake’s long-term impact and recovery efforts, the trauma experienced by these children has received attention throughout. Two weeks after the earthquake, the *New York Times* noted, “Many children … bore direct witness to horror or survived destruction that killed their relatives, their schoolmates and their teachers. … Many children are struggling to make sense of what they are experiencing” (Sontag, 2010). Six months later, a UNICEF report recorded poignantly that there were

children who still talk superstitiously of *le grand serpent*—the great snake—that slithered angrily underground, bumping up against their homes and schools, reducing them to dust and rubble. Even now streets remain littered with the debris of destroyed buildings, making it difficult for children to find a visual escape from their memories of disaster. (UNICEF, 2010, p. 2)

On the first anniversary of the earthquake, UNICEF (2011) reported that nearly 1,300 of the “orphans” it had registered had been reunited with a parent or caregiver. It can be assumed, then, that a large population of children were still without permanent family care and still reeling from the effects of displacement and trauma.

Those caring for the orphans were likely to be under considerable stress themselves. An article written for the *New England Journal of Medicine* placed the plight of the orphans in context: “The earthquake occurred against a background of economic extremity driving family separation, aggressive trafficking networks, inadequate law enforcement, and a growing global demand for adoptive children” (Balsari et al., 2010, p. e25). International adoption procedures and the lack of regulation and oversight at many of Haiti’s orphanages came under scrutiny in the weeks and months following the earthquake. Balsari et al. (2010) argued that

all aid workers, including voluntary health care professionals, should receive training in child-protection norms and be sensitized to the prevalence of child abandonment, abduction, and trafficking. Child-protection basics, including identification procedures and record keeping, reestablishment of educational opportunities, creation of child-friendly spaces (set up specifically for children in crises to address their physical and psychosocial needs in a stable, trustworthy environment), and health interventions, must be ramped up rapidly. (p. e25)

Orphanage workers, in addition to responding to the effects of their own experiences of the earthquake, were thus under added pressure to expand and improve the supportive care they provide to the orphaned children.

It was against this backdrop that a delegation from Energies Psy Sans Frontières (EPSF; or

Energy Psychology Without Borders) traveled to Port-au-Prince, Haiti, in March 2011 to train groups of seminarians whose duties included serving adult and orphan parishioners in the techniques of Emotional Freedom Techniques (EFT). Falling under the rubric of energy psychology (EP), EFT has been described as “acupressure assisted psychotherapy” (Lane, 2009, p. 40). This simple psychophysiological intervention, developed by Craig (2010), pairs a negative cognition with a self-acceptance statement, which the individual repeats while tapping 12 specific points on the body, assessing distress before and after “rounds” of tapping and repeating the process until distress is reduced. EFT has broad application: It has been shown to reduce symptoms of a range of psychological disorders, including phobias, anxiety, and depression (Church & Brooks, 2010; Rowe, 2005; Wells, Polglase, Andrews, Carrington, & Baker, 2003); to reduce test anxiety for students at both the high school (Sezgin & Özcan, 2009) and college levels (Benor, Ledger, Toussaint, Hett, & Zaccaro, 2009); to improve confidence and reduce anxiety associated with sports performance (Church & Downs, 2010); and to reduce physical symptoms of fibromyalgia (Brattberg, 2008). Most important for the present context, however, is EFT’s utility in treating traumatic stress (for reviews, see Craig, 2009; Feinstein, 2008b, 2010).

## EFT and PTSD

Evidence for the efficacy of EFT in treatment of populations experiencing posttraumatic stress disorder (PTSD) has been accumulating in recent years. In a series of investigations, Church and colleagues (Church, 2010; Church, Geronilla, & Dinter, 2009; Church et al., 2010) have shown, for example, that EFT interventions can lead to long-term reductions of symptoms of PTSD in combat veterans. Church et al. (2009) conducted a pilot study testing the effects of EFT on seven veterans (four Iraq War veterans, two Vietnam War vets, and one a veteran who experienced PTSD following sexual assault) and found that following six sessions of EFT focusing on combat and other traumatic memories, severity of symptoms had decreased by 46% ( $p < .001$ ) and PTSD scores had decreased by 50% ( $p < .016$ ). These gains were maintained at 3-month follow-up. Church (2010) carried out a similar pilot investigation, this time including both veterans and their family members

( $N = 11$ , nine of whom had been diagnosed with PTSD; two exhibited symptoms of PTSD). Following 10–15 hr of EFT therapy spread across a 5-day treatment period, scores on the military version of the PTSD Checklist (PCL–M) were significantly reduced ( $p < .01$ ); these improvements held at 1-month, 3-month, and 1-year follow-ups.

These findings were corroborated in a larger sample ( $N = 59$ ) with a randomized controlled trial (RCT) conducted by Church et al. (2010). Of the 54 veterans who completed the study, 29 had been assigned to an EFT treatment group and 25 to a waitlist control group. Pretreatment assessments indicated that the mean score on the PCL–M was 61.4 for the treatment group and 66.6 for the waitlist group (the cutoff for PTSD is 50). After six hour-long EFT sessions, the treatment group's score had decreased significantly to a mean of 34.6 ( $p < .0001$ ), while the control group remained nearly unchanged ( $M = 65.3$ ) a month after initial testing. Breadth and severity of psychological distress as measured by the Symptom Assessment 45 had also diminished significantly by the end of treatment for the treatment group ( $ps < .0001$ ) while remaining unchanged for the control group.

In an RCT pilot focusing on abused adolescents, Church, Piña, Reategui, and Brooks (2012) explored the effects of EFT on 16 boys (age range = 12–17 years) living in a residential treatment facility for children with a history of sexual, physical, or psychological abuse or neglect. The PTSD components of intrusive memories and avoidance symptoms were assessed on the Subjective Units of Distress Scale (SUD) and the Impact of Events Scale (IES). Participants were randomly assigned to either an experimental group ( $n = 8$ ) receiving a single 1-hr session of EFT or to a waitlist control group ( $n = 8$ ) receiving no treatment. Scores on the SUD and IES were recorded before the intervention and 30 days following. No improvement occurred for the control group. For the experimental group, total scores on the IES declined significantly ( $p < .001$ ) to the point that participants no longer had PTSD scores in the clinical range.

There is some suggestion, from analogous EP modalities, that EFT may be used to treat residual effects of PTSD years after the experienced trauma. Sakai, Connolly, and Oas (2010) studied the use of Thought Field Therapy (TFT), which uses an acupoint tapping method similar to that of EFT, in a sample of 50 adolescents who had been orphaned by the 1994 genocide in Rwanda. Following a

single session of TFT, these children's scores on both a self-report inventory and a PTSD checklist completed by caregivers at the orphanage had decreased significantly ( $p < .0001$ ). These improvements were maintained at the 1-year follow-up. Connolly and Sakai (2011) then extended these findings in an RCT with 145 adult survivors of the Rwandan genocide. Participants were assigned to either a TFT treatment group or to a waitlist control, and PTSD symptoms were assessed using the Trauma Symptom Inventory (TSI) and Modified PTSD Symptom Scale (MPSS). Following the intervention, significant differences ( $p < .001$ ) were found between groups on 9 of 10 subscales of the TSI and for both severity and frequency on the MPSS. Importantly, reductions in symptoms were maintained at the 2-year follow-up.

Collectively, these studies suggest that the effects and symptoms of PTSD can be reliably attenuated through intervention with EP methods, particularly EFT. But what is only alluded to in the above summaries is worth underlining here: EFT has repeatedly been proved efficacious in even very brief interventions. As researchers (e.g., Church, 2010; van der Kolk, McFarlane, & Weisaeth, 1996) have raised concerns about the potentially retraumatizing effects on vulnerable populations asked to recall trauma, this makes exploration of the effects of EFT of particular interest in a population that has only very recently witnessed mass casualty and destruction, such as those Haitians who survived the 2010 earthquake. Representatives of EPSF who traveled to Haiti in March 2011 to train seminarians in EFT were asking participants to address trauma that was still relatively recent in a population considered at very high risk for the effects of PTSD.

## The Present Study

Though many seminarians were and will in future be engaged in offering counseling to others, a striking finding of this study was that many of these caregivers were themselves exhibiting symptoms of PTSD. This should not have come as a surprise given the participants' own proximity to the trauma: Whether or not they had experienced the loss of family or friends directly—and given the breadth of the destruction, it would be difficult to find one who had not—all were witnesses to the devastation the earthquake had wrought. Moreover, there is a growing literature acknowledging

the potential for stress, burnout, and diminished psychological health in those working in the mental health field (see, e.g., Jenkins & Elliott, 2004; Rössler, 2012) and, in particular, for the development of symptoms of PTSD, depression, and anxiety among frontline personnel and aid workers responding to large-scale humanitarian disasters (e.g., Lopes Cardozo et al., 2012; Soffer, Wolf, & Ben-Ezra, 2011; Van der Velden, van Loon, Benight, & Eckhardt, 2012; Wang, Zhang, Zhou, Shi, & Liu, 2010). In other words, there exists the possibility that counselors themselves need counseling. This is what the current study sought to do. The impact of EFT on the PTSD symptom levels of study participants is summarized below.

## Method

### Participants

A convenience sample was used for the current study. Drawn from a larger group of 275 seminarians who had volunteered to undergo training in EFT, the sample group consisted of 77 men ranging in age from 22 to 25 years old, with a mean age of 23. Permission for the study was obtained from the director of the seminary, and all participants provided informed consent. The intervention was conducted by the first author, a French trainer certified by EFT Universe, and conducted in the participants' native French. Training took place in a large tent outdoors, because many of the participants were so traumatized that they had been unable to enter a building since the earthquake, or were unable to stay inside a building for very long without becoming agitated. The sample was smaller than the total group since PCL scores were available for only 150 participants; 112 filled out both pre- and posttest questionnaires, and of those, 77 were complete. All analysis was performed on this subsample.

### Measures

*PCL.* PTSD was assessed using the civilian version of the PCL, sometimes also referred to as the PCL-C (Blanchard, Jones-Alexander, Buckley, & Forneris, 1996; Weathers, Litz, Huska, & Keane, 1994). The PCL is one of the most commonly used self-report measures for screening of PTSD (Elhai, Gray, Kashdan, & Franklin, 2005; Wilkins, Lang, & Norman, 2011). With 17 Likert items that map onto PTSD diagnostic criteria as

defined by the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.), respondents rate the degree to which they were bothered by a particular symptom in the preceding month (1 = *not at all*; 5 = *extremely*). Three versions of the PCL exist—Military, Civilian, and Specific (S)—and the anchor event and wording vary according to version used. McDonald and Calhoun (2010, p. 976) underscored the utility of the PCL in screening for PTSD and suggested that it be supplemented with a second-tier diagnostic test, such as a standardized interview. Wilkins et al. (2011) expanded on this research to conclude that the PCL has good test-retest reliability and validity. The French-language version of the PCL has been validated (Ventureyra, Yao, Cottraux, Note, & De Mey-Guillard, 2002; Yao et al., 2003). Additionally, the PCL has been frequently used to screen survivors of natural disasters for symptoms of PTSD (see, e.g., Vera-Villarroel, Zych, Celis-Atenas, Córdoba-Rubio, & Buela-Casal, 2011; Zhang, Wang, Shi, Wang, & Zhang, 2012).

### Procedure

Participants received 2 days of EFT training (7 hr per day) by the first author of this article. EFT was administered with fidelity to the French translation of *The EFT Manual* (Craig, 2012). During training, participants were asked to pair the memory of a traumatic event that occurred during the earthquake with a statement of self-acceptance. EFT calls this type of pairing the “setup statement.” This conjunction is expressed in setup statements such as “Even though [brief description of traumatic event], I deeply and completely accept myself.” While the form of the set-up statement may vary, it must invariably contain two components, exposure and cognitive acceptance. These are stated side by side, that is, “Even though [exposure], I deeply and completely accept myself [cognitive acceptance].” Actual examples from the training are as follows:

“Even though my young sister was killed right beside me, I deeply...”

“Even though I was shocked to discover that my best friend was dead, I deeply...”

“Even though I lost my leg when the roof collapsed on me, I deeply...”

“Even though I do not understand why I am still alive, I deeply...”

“Even though I’m still too afraid to enter a building, I deeply...”  
 “Even though I have nightmares every night, I deeply...”  
 “Even though I can still hear the screams of my brother, I deeply...”

Participants repeat the statement while stimulating the first of EFTs prescribed acupoints with self-tapping. They use a reminder phrase such as “nightmares” to maintain exposure while tapping the remaining points. The full EFT procedure is found in *The EFT Manual* (Craig, 2010).

Before and after each round of tapping, participants rated their emotional distress on the SUD, a Likert-type scale ranging from 0 (*no distress*) to 10 (*highest distress possible*). SUD scores were not recorded for the purposes of the present study, but were instead used as a process variable, as a way for participants to observe their individual levels of distress as the intervention progressed. The aim of EFT is to continue rounds of tapping until a participant’s SUD levels are significantly diminished.

On the first day, the trainer worked with three individuals in front of the group for the purpose of demonstrating EFT. While observing the demonstrations, the whole group self-applied EFT. This method is called “Borrowing Benefits” and is described in *The EFT Manual* (Craig, 2010). On the second day, participants learned the “Tell the Story” technique described in *The EFT Manual* (Craig, 2010) and also practiced together in pairs for 45 min.

Participants completed the PCL both at the start of the 2 days of EFT training and at the end. PCLs were administered by the second author, a licensed psychotherapist, and analyzed by an independent biostatistician.

### *Statistical Analysis*

We conducted paired *t* tests to compare the pre–post PCL scores.

### **Results**

As noted above, the sample consisted of 77 male seminarians ranging in age from 22 to 25 years old ( $M = 23$  years). The average pretest PCL score was 54.4 (range = 20–79). Scores 50 and above are considered in the clinical range for

**Table 1:** Pre–Post Change on PCL–C scores.

<b>Time</b>	<b><i>M</i></b>	<b><i>SD</i></b>
Pretest	54.4	13.4
Posttest	27.2	6.4

PTSD. Prior to the workshop, 48 of the 77 participants (62.3%) met the cutoff for clinical PTSD.

Paired *t* tests were conducted on the PCL pre–post scores. There was a statistically significant decrease in PCL scores,  $t(76) = 19.9, p < .001$  (see Table 1). None of the participants met the clinical cutoff for PTSD following the workshop.

The percent change between the pre- and posttest PCL scores was calculated by subtracting the minimum PCL score (17) from the pre- and posttest scores and calculating the percentage change between the two adjusted scores. Posttest PCL scores decreased an average of 72%, ranging from a 21% reduction to a 100% reduction in symptom severity.

No adverse events were noted. There were no dropouts between the first and second assessments. A situational stimulus at the workshop provided an unforeseen clinical test. Early in the afternoon of the first day, an airplane passed just over the tent where the training was being held. About 20% of the participants dropped to the floor in fright. The trainer worked on this event with the group. Near the end of a second day, another airplane passed over. This time, none of the participants had a visible stress reaction.

### **Discussion**

The present study adds to the burgeoning evidence not only of EFT’s capacity for the often rapid reduction of symptoms across a number of applications but in particular in populations experiencing PTSD. Seminarians who were being trained in the methodology of EFT for use as a supplemental therapy for their parishioners in the aftermath of the earthquake, themselves showed symptoms of PTSD at the start of the training: Approximately 62% met the clinical cutoff for PTSD before the workshop; following 2 days of training, none of them did. This corroborates the frequently dramatic and rapid reduction in psychological symptoms reported by other studies of EFT across a number of conditions (Benor et al., 2009; Brattberg, 2008; Church, 2010; Church &

Brooks, 2010; Church & Downs, 2010; Church et al., 2009, 2010, 2012; Rowe, 2005; Sezgin & Özcan, 2009; Wells et al., 2003).

The current study has a number of limitations. For one, it used a convenience sample and did not test an experimental group against a control. The study sample was composed of participants who had volunteered to train in the EFT method, and expectancy effects are likely to have contributed to the reported results. Only one assessment, the PCL, was used, rather than a battery of assessments. No observer-rated measure such as the CAPS (Clinician-Administered PTSD Scale) was used to corroborate the self-rated PCL results, and thus a categorical diagnosis of PTSD among study participants cannot be made.

However, the reductions on a measure of PTSD (here, the PCL) were comparable to those reported in RCTs studying the effects of EFT on traumatized populations (e.g., with combat veterans and abused adolescents, both  $p < .001$ ; see Church et al., 2010, 2012, respectively), and although the results of this particular group cannot be generalized, we note that they do follow the pattern of other, controlled, examinations of the effects of EFT and other tapping therapies (e.g., Connolly & Sakai, 2011) on PTSD.

This is one of the first studies to use the civilian version of the PCL to measure the effects of EFT on PTSD symptoms. Both Church (2010) and Church et al. (2010) used the military version of the PCL as their screening measure for PTSD in veterans. Folkes (2002) used the civilian version of the PCL in a study of the effects of TFT on 29 low-income refugees and immigrants living in the United States. Participants in that study showed significantly less avoidance behavior, intrusive thoughts, and hypervigilance (all  $p < .05$ ) following the intervention. Wilkins et al. (2011) found that the specific version of the PCL was better able than the military and civilian versions to discriminate PTSD symptoms from similar symptoms of other disorders and speculated that this was because the PCL-S anchored to a specific trauma. However, the civilian version of the PCL has been in common use in recent studies that screen for PTSD in the aftermath of natural disasters (e.g., Vera-Villarroel et al., 2011; Zhang et al., 2012). Given these qualifications and the measure's growing use, we suggest that more exploration is needed to measure the relative suitability of these two assessments.

Another limitation of this study is the lack of long-term follow-up. Participants' symptoms of PTSD were measured immediately pre- and postintervention, across a 2-day time frame. Again, in analogous interventions, improvements have been shown to hold at the 1-year (Church, 2010; Sakai et al., 2010) and even the 2-year mark following the intervention (Connolly & Sakai, 2011). In a review of EP research, Feinstein (2008a) observed that therapeutic gains were maintained to a statistically significant degree in all studies that recorded follow-up scores for periods of up to a year. Feinstein (2008b), meanwhile, noted the success of single-session interventions. However, in conditions as unstable as those in Haiti following the 2010 earthquake, where relief efforts and rebuilding were often a slow process, there exists the possibility of reexposure and retraumatization. Whether these reductions in PTSD can hold in such an environment would be worth exploring in future studies.

This is one of several studies in which the effects of group application of EFT have been assessed. In a study of 216 healthcare workers such as psychotherapists, nurses, physicians, chiropractors, and alternative medicine practitioners, similar effects were found (Church & Brooks, 2010). The healthcare workers received a 1-day EFT workshop that included 2 hr of tapping. Their psychological symptoms, such as anxiety and depression, decreased by 45%, with much of the gain being maintained on follow-up ( $p < .0001$ ). A study of 218 veterans and their spouses identified a similar pattern (Church & Brooks, 2012). Participants attended a 1-week healing retreat that included an EFT component to reduce PTSD symptoms. The study also used the PCL and found significant symptoms reductions in both veterans and spouses, with symptom levels dropping even further on follow-up. The group effects of EFT have been noted by others (Palmer-Hoffman & Brooks, 2011; Rowe, 2005). The ability to improve mental health when offered in a group setting makes EFT an efficient and cost-effective remedy.

Finally, although this study expands the evidence for the use of EFT in populations experiencing PTSD, it does not add to our understanding of the mechanisms underlying its efficacy. Feinstein and Church (2010) proposed a model for tapping therapies (i.e., EFT, TFT) that suggested that "Exposure [and] acupoint treatments modulate, with unusual speed and power, gene expression for

specific as well as systemic therapeutic gains" (p. 292), such as the reduction of somatic anxiety. Church et al. (2012) noted that EFT draws on elements of eye movement desensitization therapy and reprocessing, cognitive-behavior therapy, and exposure therapy, all of which have been shown to reduce PTSD symptoms (Benedek, Friedman, Zatzick, & Ursano, 2009; Bradley, Greene, Russ, Dutra, & Western, 2005; Institute of Medicine, 2006; Institute of Medicine, Committee on Treatment of Posttraumatic Stress Disorder, 2007; National Institute for Clinical Excellence, 2005; Seidler & Wagner, 2006; van Etten & Taylor, 1998). Looking specifically at the rapid and significant reductions that tapping therapies have been reported to have on PTSD symptoms, Feinstein (2010) speculated that "adding acupoint stimulation to brief psychological exposure is unusually effective ... because deactivating signals are sent directly to the amygdala, resulting in the rapid attenuation of threat responses to innocuous stimuli" (p. 385). Unfortunately, the present study cannot contribute new information to the testing of this model, though it does add yet another example to the abundant evidence linking EFT interventions with reductions in psychological stress.

These caveats aside, we offer the following strengths as implications of our research. EFT continues to be shown to be a relatively low-cost treatment with the ability to be delivered effectively in a group setting and to lead to the rapid diminishment of the symptoms of traumatic stress. In the widely devastated landscape of the aftermath of natural disaster, EFT offers an opportunity to reach a wide swath of a population in crisis, reducing the effects of trauma among the precariousness of unforeseen events. With the recent scenes from Hurricane Sandy a reminder that these events recur, an intervention whose efficacy is proven, fast, and long-lasting is invaluable. More research is needed to extend the generalizability of this study, but initial evidence suggests that EFT holds promise as an efficacious and cost-effective intervention.

## References

- Arce, R., & O'Brien, S. (2011, January 12). Most have homes, but some Haitian orphans still in shelters. *CNN*. Retrieved from <http://www.cnn.com/2011/US/01/11/haiti.us.orphans/index.html>
- Balsari, S., Lemery, J., Williams, T. P., & Nelson, B. D. (2010, March 4). Protecting the children of Haiti. *New England Journal of Medicine*, 362, e25. doi:10.1056/NEJMmp1001820
- Belkin, L. (2010, January 25). Adopting a child from Haiti. *New York Times*. Retrieved from <http://parenting.blogs.nytimes.com/2010/01/25/adopting-a-child-from-haiti/>
- Benedek, D. M., Friedman, M. J., Zatzick, D., & Ursano, R. J. (2009). Practice guideline for the treatment of patients with acute stress disorder and posttraumatic stress disorder. *Psychiatry Online*. Retrieved from <http://www.psychiatryonline.com/content.aspx?aid=156498>
- Benor, D. J., Ledger, K., Toussaint, L., Hett, G., & Zaccaro, D. (2009). Pilot study of Emotional Freedom Techniques, wholistic hybrid derived from Eye Movement Desensitization and Reprocessing and Emotional Freedom Technique, and cognitive behavioral therapy for treatment of test anxiety in university students. *Explore*, 5, 338–340. doi:10.1016/j.explore.2009.08.001
- Blanchard, E. B., Jones-Alexander, J., Buckley, T. C., & Forneris, C. A. (1996). Psychometric properties of the PTSD Checklist (PCL). *Behaviour Research and Therapy*, 34, 669–673. doi:10.1016/0005-7967(96)00033-2
- Bradley, R., Greene, J., Russ, E., Dutra, L., & Western, D. (2005). A multidimensional meta-analysis of psychotherapy for PTSD. *American Journal of Psychiatry*, 162, 214–227. doi:10.1176/appi.ajp.162.2.214
- Brattberg, G. (2008). Self-administered EFT (Emotional Freedom Techniques) in individuals with fibromyalgia: A randomized trial. *Integrative Medicine: A Clinician's Journal*, 7, 30–35.
- Church, D. (2010). The treatment of combat trauma in veterans using EFT (Emotional Freedom Techniques): A pilot protocol. *Traumatology*, 16, 55–65. doi:10.1177/1534765609347549
- Church, D., & Brooks, A. (2010). The effect of a brief EFT (Emotional Freedom Techniques) self-intervention on anxiety, depression, pain and cravings in healthcare workers. *Integrative Medicine: A Clinician's Journal*, 9(5), 40–43.
- Church, D., & Brooks, A. (2012, June). CAM and energy psychology techniques remediate PTSD symptoms in veterans and spouses. Data presented at the conference of the Association for Comprehensive Energy Psychology, San Diego.
- Church, D., & Downs, D. (2010, November). *Critical incident recall and sport confidence changes after a brief EFT (Emotional Freedom Techniques) intervention*. Paper presented at the 12th Annual Energy Psychology Conference, Toronto, ON, Canada.
- Church, D., Geronilla, L., & Dinter, I. (2009). Psychological symptom change in veterans after six sessions of EFT (Emotional Freedom Techniques): An observational study. *International Journal of Healing and Caring*, 9(1).
- Church, D., Hawk, C., Brooks, A., Toukolehto, O., Wren, M., Dinter, I., & Stein, P. (2010, April). *Psychological trauma in veterans using EFT (Emotional Freedom Techniques): A randomized controlled trial*. Poster session at the 31st Annual Meeting and Scientific Sessions of the Society of Behavioral Medicine, Seattle, WA.
- Church, D., Piña, O., Reategui, C., & Brooks, A. (2012). Single-session reduction of the intensity of traumatic memories in abused adolescents after EFT: A randomized controlled pilot study. *Traumatology*, 18, 73–79. doi:10.1177/1534765611426788
- Connolly, S., & Sakai, C. (2011). Brief trauma intervention with Rwandan genocide survivors using Thought Field Therapy. *International Journal of Emergency Mental Health*, 13, 161–172.

- Craig, G. (2009). *EFT for PTSD*. Santa Rosa, CA: Energy Psychology Press.
- Craig, G. (2010). *The EFT manual* (2nd ed.). Santa Rosa, CA: Energy Psychology Press.
- Craig, G. (2012). *Le manuel de l'EFT* (2nd ed.; Gurret, Hansoul, Maesmaker (de), Wauthier Trans.) [The manual of EFT]. Paris, France: Dangles Editions.
- Doc Zone. (2011, August). Haiti's orphans. *CBC Documentaries*. Retrieved from <http://www.cbc.ca/documentaries/doczone/2011/haitiorphans/>
- Elhai, J., Gray, M., Kashdan, T., & Franklin, C. (2005). Which instruments are most commonly used to assess traumatic event exposure and posttraumatic effects? A survey of traumatic stress professionals. *Journal of Traumatic Stress*, 18, 541–545. doi:10.1002/jts.20062
- Feinstein, D. (2008a). Energy psychology: A review of the preliminary evidence. *Psychotherapy*, 45, 199–213. doi:10.1037/0033-3204.45.2.199
- Feinstein, D. (2008b). Energy psychology in disaster relief. *Traumatology*, 14, 124–137. doi:10.1177/1534765608315636
- Feinstein, D. (2010). Rapid treatment of PTSD: Why psychological exposure with acupoint tapping may be effective. *Psychotherapy*, 47, 385–402. doi:10.1037/a0021171
- Feinstein, D., & Church, D. (2010). Modulating gene expression through psychotherapy: The contribution of noninvasive somatic interventions. *Review of General Psychology*, 14, 283–295. doi:10.1037/a0021252
- Folkes, C. (2002). Thought Field Therapy and trauma recovery. *International Journal of Emergency Mental Health*, 4, 99–103.
- Friends of the Orphans. (n.d.). *Sponsor a child in Haiti*. Retrieved from <http://www.friendsoftheorphans.org/s/769/social.aspx?sid=769&gid=1&pgid=920>
- Institute of Medicine. (2006, June). *Posttraumatic stress disorder: Diagnosis and assessment*. Washington, DC: Author.
- Institute of Medicine, Committee on Treatment of Posttraumatic Stress Disorder. (2007). *Treatment of posttraumatic stress disorder: An assessment of the evidence*. Washington, DC: Author. Retrieved from <http://www.nap.edu/catalog/11955.html>
- Jenkins, R., & Elliott, P. (2004). Stressors, burnout, and social support: Nurses in acute mental health settings. *Journal of Advanced Nursing*, 48, 622–631.
- Lane, J. R. (2009). The neurochemistry of counterconditioning: Acupressure desensitization in psychotherapy. *Energy Psychology: Theory, Research, and Treatment*, 1(1), 31–44. doi:10.9769.EPJ.2009.1.1.JRL
- Lopes Cardozo, B., Gotway Crawford, C., Eriksson, C., Zhu, J., Sabin, M., Ager, A., ... Simon, W. (2012). Psychological distress, depression, anxiety, and burnout among international humanitarian aid workers: A longitudinal study. *PLoS One*, 7, e44948. doi:10.1371/journal.pone.0044948
- McDonald, S. D., & Calhoun, P. S. (2010). The diagnostic accuracy of the PTSD Checklist: A critical review. *Clinical Psychology Review*, 30, 976–987. doi:10.1016/j.cpr.2010.06.012
- National Institute for Clinical Excellence. (2005). *Post traumatic stress disorder (PTSD): The management of adults and children in primary and secondary care*. London, England: Author. Retrieved from <http://www.nice.org.uk/guidance/index.jsp?action=byID&r=true&o=10966>
- Palmer-Hoffman, J., & Brooks, A. J. (2011). Psychological symptom change after group application of Emotional Freedom Techniques (EFT). *Energy Psychology: Theory, Research, and Treatment*, 3(1), 33–38. doi: 10.9769.EPJ.2011.3.1.JPH
- Panorama. (2010). *In pictures: Haiti's earthquake orphans*. Retrieved from [http://www.bbc.co.uk/panorama/hi/front\\_page/newsid\\_8794000/8794597.stm](http://www.bbc.co.uk/panorama/hi/front_page/newsid_8794000/8794597.stm)
- Rössler, W. (2012). Stress, burnout, and job dissatisfaction in mental health workers. *European Archives of Psychiatry and Clinical Neuroscience*, 262(Suppl. 2), 65–69.
- Rowe, J. E. (2005). The effects of EFT on long-term psychological symptoms. *Counseling and Clinical Psychology*, 2, 104–111.
- Sakai, C. S., Connolly, S. M., & Oas, P. (2010). Treatment of PTSD in Rwandan genocide survivors using Thought Field Therapy. *International Journal of Emergency Mental Health*, 12, 41–49.
- Seabrook, J. (2010, May 10). The last babylift: Adopting a child in Haiti. *The New Yorker*. Retrieved from [http://www.newyorker.com/reporting/2010/05/10/100510fa\\_fact\\_seabrook](http://www.newyorker.com/reporting/2010/05/10/100510fa_fact_seabrook)
- Seidler, G. H., & Wagner, F. E. (2006). Comparing the efficacy of EMDR and trauma-focused cognitive-behavioral therapy in the treatment of PTSD: A meta-analytic study. *Psychological Medicine*, 36, 1515–1522. doi:10.1017/S0033291706007963
- Sequera, V., & Fox, B. (2010, January 27). Haiti's children fending for selves. *Nashua Telegraph*. Retrieved from <http://www.nashuatelegraph.com/news/worldnation/583420-227/haitis-children-fending-for-selves.html>
- Sezgin, N., & Özcan, B. (2009). The effect of Progressive Muscular Relaxation and Emotional Freedom Techniques on test anxiety in high school students: A randomized controlled trial. *Energy Psychology: Theory, Research, and Treatment*, 1(1), 23–30. doi:10.9769.EPJ.2009.1.1.NS
- Soffer, Y., Wolf, J. J., & Ben-Ezra, M. (2011). Correlations between psychosocial factors and psychological trauma symptoms among rescue personnel. *Prehospital and Disaster Medicine*, 26, 166–169. doi:10.1017/S1049023X11006224
- Sontag, D. (2010, January 26). Haiti's children adrift in world of chaos. *New York Times*. Retrieved from [http://www.nytimes.com/2010/01/27/world/americas/27children.html?pagewanted=all&\\_r=1&](http://www.nytimes.com/2010/01/27/world/americas/27children.html?pagewanted=all&_r=1&)
- UNICEF. (2010, July). *Children of Haiti: Milestones and looking forward at six months*. Retrieved from [http://www.unicef.org/infobycountry/files/UNICEF\\_Haiti\\_-\\_Six\\_Months\\_Report\\_Final.pdf](http://www.unicef.org/infobycountry/files/UNICEF_Haiti_-_Six_Months_Report_Final.pdf)
- UNICEF. (2011, January). *Children in Haiti: One year after—The long road from relief to recovery*. Retrieved from [http://www.unicef.org/infobycountry/files/Children\\_in\\_Haiti\\_-\\_One\\_Year\\_After\\_-\\_The\\_Long\\_Road\\_from\\_Relief\\_to\\_Recovery.pdf](http://www.unicef.org/infobycountry/files/Children_in_Haiti_-_One_Year_After_-_The_Long_Road_from_Relief_to_Recovery.pdf)
- van Etten, M. L., & Taylor, S. (1998). Comparative efficacy of treatments for post-traumatic stress disorder: A meta-analysis. *Clinical Psychology and Psychotherapy*, 5, 126–144. doi:10.1002/(SICI)1099-0879(199809)5:3<126::AID-CPP153>3.0.CO;2-H
- van der Kolk, B. A., McFarlane, A. C., & Weisaeth, L. (1996). *Traumatic stress: The effects of overwhelming experience on mind, body, and society*. New York, NY: Guilford Press.
- Van der Velden, P. G., van Loon, P., Benight, C. C., & Eckhardt, T. (2012). Mental health problems among search and rescue workers deployed in the Haiti earthquake 2010:

- A pre–post comparison. *Psychiatry Research*, 198, 100–105. doi:10.1016/j.psychres.2012.02.017
- Ventureyra, V. A., Yao, S. N., Cottraux, J., Note, I., & De Mey-Guillard, C. (2002). The validation of the Posttraumatic Stress Disorder Checklist Scale in posttraumatic stress disorder and nonclinical subjects. *Psychotherapy and Psychosomatics*, 71, 47–53. doi:10.1159/000049343
- Vera-Villarroel, P., Zych, I., Celis-Atenas, K., Córdova-Rubio, N., & Buela-Casal, G. (2011). Chilean validation of the Posttraumatic Stress Disorder Checklist—Civilian version (PCL-C) after the earthquake on February 27, 2010. *Psychological Reports*, 109, 47–48. doi:10.2466/02.13.15.17. PRO.109.4.47-58
- Wang, L., Zhang, J., Zhou, M., Shi, Z., & Liu, P. (2010). Symptoms of posttraumatic stress disorder among health care workers in earthquake-affected areas in southwest China. *Psychological Reports*, 106, 555–561. doi:10.2466/pr0.106.2.555-561
- Weathers, F. W., Litz, B. T., Huska, J. A., & Keane, T. M. (1994). *PCL-C for DSM-IV*. Boston, MA: National Center for PTSD—Behavioral Science Division.
- Wells, S., Polglase, K., Andrews, H. B., Carrington, P., & Baker, A. H. (2003). Evaluation of a meridian-based intervention, Emotional Freedom Techniques (EFT), for reducing specific phobias of small animals. *Journal of Clinical Psychology*, 59, 943–966. doi:10.1002/jclp.10189
- Wilkins, K. C., Lang, A. J., & Norman, S. B. (2011). Synthesis of the psychometric properties of the PTSD Checklist (PCL) Military, Civilian, and Specific Versions. *Depression and Anxiety*, 28, 596–606. doi:10.1002/da.20837
- Wylie, V. (2011, May 18). Haiti, one year after the earthquake. *National Geographic Assignment Blog*. Retrieved from <http://nationalgeographicassignmentblog.com/2011/05/18/haiti-one-year-after-the-earthquake/>
- Yao, S. N., Cottraux J., Note, I., De Mey-Guillard, C., Mollard, E., & Ventureyra, V. (2003). Évaluation des états de stress post-traumatique: Validation d'une échelle, la PCLS [Evaluation of post-traumatic stress disorder: Validation of a measure, the PCLS]. *L'Encéphale*, 29(3, Pt. 1), 232–238.
- Zhang, Z., Wang, W., Shi, Z., Wang, L., & Zhang, J. (2012). Mental health problems among the survivors in the hard-hit areas of the Yushu earthquake. *PLoS One*, 7, e46449. doi:10.1371/journal.pone.0046449

# Emotional Freedom Techniques for Dyslexia: A Case Study

Fiona McCallion

*Edinburgh Napier University, Edinburgh, Scotland*

## Abstract

Dyslexia is a developmental condition, often inherited, that interferes with the acquisition and processing of written language. Sequencing issues, disorientation, and emotional issues can all be successfully treated separately. This case study details the use of Emotional Freedom Techniques (EFT) to address these issues separately with a single client over 3 connected sessions: addressing 2 specific events concerning teachers, prebirth issues, and the birth process, respectively. By the end of the 3 sessions,

the client was able to read easily and fluently, sequence, and understand sequences. The disorientation associated with her dyslexia had reduced to the point where it was no longer an issue. Whether this formula can be applied to all people with dyslexia, however, is not clear and requires further study.

**Keywords:** dyslexia, EFT, Emotional Freedom Techniques (EFT), case study, autism spectrum disorders.

**Fiona McCallion**, BA (Hons), is a therapist in private practice, London, England. **Correspondence:** 3 Ashridge Gardens, London N13 4JY. coerdelion@yahoo.com. **Disclosures:** The author reports no conflicts of interest.

Dyslexia is a developmental condition, often inherited, that interferes with the acquisition and processing of written language (Definition of Dyslexia, 2003). It is also a neurological condition in which the brain of the individual with dyslexia shows distinct differences from that of a “normal” child (Gabrieli, 2009). Currently, the academic consensus seems to be that there is comorbidity between dyslexia and autism spectrum conditions (Bishop, 2006; Dyslexia Research Trust, n.d.; Williams & Casanove, 2009). This consensus is apparently taken for granted in most studies, although Humer and Mann (2010), for example, distinguished participants with dyslexia as a separate group from those with autism spectrum disorders in their study, so this consensus may be changing.

By contrast, Ronald D. Davis (1997) in his book *The Gift of Dyslexia* described dyslexia as a gift that allows those with the condition to perceive the world in ways that “normal” people cannot: The gift of dyslexia, argued Davis, is the gift of genius.

Although one might take issue with Davis’s assertion, since not all individuals with dyslexia can be geniuses, what is interesting is his description of what dyslexia is as seen from the point of view of someone who actually is dyslexic (i.e., Davis himself) and the issues he outlines in the first two chapters of his book (Davis, 1997).

From Davis’s point of view, dyslexia is not a problem with reading and processing per se but an entirely different way of experiencing the world. According to him, people with dyslexia have a multidimensional perception that results in their visualizing, to a greater or lesser degree, the inside and the outside of anything and everything they come into contact with—people, houses, cars, animals, tables, clouds, toys, the ground under their feet, and so forth—resulting in a greater or lesser degree of constant disorientation. Their “mind’s eye,” far from being anchored as it is in nondyslexic people, darts about in an uncontrolled and uncontrollable manner, examining everything from all sides and all angles (Davis, 1997). In terms of reading, this disorientation, caused by the mind’s eye’s attempt to see all sides of the printed text at the same time, results in the experience of print being raised off the paper or screen and constantly changing shape and orientation, with constant shifts in the relationship of

any one letter shape to any or all of the others. Little wonder, then, that those with dyslexia have difficulty “processing” information. Written information in the modern world is, according to Davis (1997), not presented in a way that dyslexic individuals can decipher. Techniques to help those with dyslexia learn to decode the written word will thus need to take into account this experience of disorientation.

## **Emotional Freedom Techniques (EFT) and Dyslexia**

EFT is one such technique that initial evidence suggests may have application in the treatment of dyslexia. A type of gentle talk therapy that pairs recall (often referred to as “tuning in”) of a stressor (often words or imagery that recall a traumatic memory) with activation of specific pressure points on the body and repetition of a statement of self-acceptance (Church & Brooks, 2010), EFT has been shown to lead to long-term reductions in psychological distress (Rowe, 2005), phobias (Wells, Polglase, Andrews, Carrington, & Baker, 2003), and test anxiety (Benor, Ledger, Toussaint, Hett, & Zaccaro, 2009; Sezgin & Özcan, 2009), as well as to simultaneously reducing distress associated with traumatic memories related to sports performance and improving confidence in college athletes (Church & Downs, 2011). All of this has potential applicability in the treatment of dyslexia. Wells (n.d.), for example, argued that EFT can be used to help reduce the anxiety individuals with dyslexia experience when approaching a reading task, thus removing the “emotional impediments to learning.” If it were simply a question of anxiety inhibiting the individual’s ability to read fluently, research into other applications of EFT would certainly suggest that the technique should have efficacy in improving reading comprehension skills for those with dyslexia. However, what is, according to Davis (1997), “normal” and therefore unremarkable for a person with dyslexia—that is, the experience of disorientation—has not been addressed in previous research on EFT or given consideration in its applications to dyslexia.

This case study, therefore, approached dyslexia from the point of view that dyslexia is not simply a reading and processing condition but has some comorbidity with autism spectrum disorder.

## **Case History**

The client was a young woman in her 20s who was diagnosed with dyslexia late in her schooling. She indicated that she had struggled with work at school, and although having attained a reasonable standard at school, she felt she had not reached a standard that reflected the amount of work she had done. At college, a friend noticed she was using different colored pens in a distinctive way to take notes in class, much as the friend’s brother—who had been diagnosed with dyslexia—had been advised to do as a strategy to help him learn. The client was subsequently examined and diagnosed by the college educational psychologist.

The client’s reading difficulties were self-reported. On closer questioning, it emerged that the client also experienced mood swings and depression. Possible attention deficit disorder or attention-deficit/hyperactivity disorder (ADD/ADHD)—also comorbid with autism spectrum conditions—involving uncontrollable temper outbursts, frustration, an inability to concentrate, and an inability to communicate her feelings coherently were related issues. Morris (n.d.) believed that 30% to 50% of dyslexia co-occurs with ADD/ADHD. The client also experienced chronic constipation, a condition that appears to have been lifelong, together with a more recent dairy food intolerance acquired during a 3-month stay in the United States.

On the basis that dyslexia is considered a developmental condition, I asked the client questions concerning early childhood, which elicited the following information: The client was the first child her mother had had via live birth, though her mother had earlier had a miscarriage about halfway through a pregnancy, which required that the fetus be removed surgically, thus adding to the physical trauma of the miscarriage. As a result, the mother was very anxious during the pregnancy with the client. The birth was apparently “difficult,” involving a relatively high level of pain relief, including pethidine (a heroin derivative), gas and air, and an epidural. A fetal monitor was attached to the client’s scalp while she was still inside the mother, which was in evidence as a small bald patch on the client’s scalp as an adult.

The client was given to frequent tantrums as a toddler on a daily basis, echoed in adulthood by the temper outbursts mentioned above. The mother taught the client to read before she started school,

but school work was apparently a struggle. She did, however, attain five good GCSEs, three A levels at age 17, and one A level at age 18 (The General Certificate of Secondary Education, or GCSE, is a qualification taken at age 16 in the United Kingdom; A Levels are the tests taken at the end of secondary education in the United Kingdom at age 18). After school, the client attended a local college to study a science Higher National Certificate (HNC; a broad-based postsecondary educational qualification), but she failed to attain the required grades, despite having learning support as soon as she was diagnosed. Following college, she attended a horse management Higher National Diploma (HND is a tertiary educational qualification equivalent to the first 2 years at university) course, but again failed to reach the required grade due to disorganization. The client confessed to having “pretty much given up” after AS level. She indicated that this was a result of working very hard for so long but feeling that she had “nothing” to show for it. She decided she could not be bothered any more. A series of low-level jobs followed. At the time of this case study, the client was out of work and receiving counselling and medication for depression. She gave informed consent to be used as a case study.

## Presenting Issues

The client described her dyslexia as a “life problem” and indicated that she wanted the EFT sessions to address her reading, processing, concentration, and focus issues. She also acknowledged problems interacting with other people, understanding their point of view (empathy), and interpreting their body language, and with general social interaction; issues that are suggestive of comorbid conditions such as ADHD and ADD (Germanò, Gagliano, & Curatolo, 2010).

## Therapeutic Goals

After discussion with the client we decided that her outcome goals for therapy were improvement in the following, in order of preference:

1. Reading and understanding of what she had read,
2. Improvement in concentration and focus.

Improvement in other problematic areas would be a distinct advantage, but the client

acknowledged that this might take more than the three sessions allowed for in the case study protocol.

On the basis that the most effective outcomes are gained from EFT by focusing on specific events (Craig, 2011, pp. 100–103), we agreed that the client would choose the focus for the first session and that I would choose the focus for the second and third sessions. The client chose to focus the first session on “making things too complicated,” a frequent complaint from her teachers at school and at college. Although “making things too complicated” is too global a focus for ideal EFT outcomes (Craig, 2011), even at the primary discussion stage, the client pointed to a particular specific event from school that she still recalled vividly. This event is outlined below. The second and third sessions were to focus on the prebirth and birth process, respectively. The reason for the prebirth approach was twofold: first, the general academic consensus that dyslexia is a developmental condition affecting the brain suggested that development in the womb would be a useful place to start; second, an article on the EFTUniverse site (Massey, n.d.) suggested that a previous death in the womb might have a profound effect on the developing fetus. Research suggests that prior fetal death in the womb brings about a higher risk of death in subsequent pregnancies (Silver, 2007). Given that prior fetal death appears to give rise to a greater risk of fetal death or complications in subsequent pregnancies (Black, Shetty, & Bhattacharya, 2008), it does not seem too great a leap, therefore, to entertain the possibility that a previous fetal death in the womb might have an effect on the development of any subsequent fetus.

I decided to focus on the birth process at the third session because of the client’s indication that there had been a high level of medical intervention and pain relief during labor, including a heroin derivative, which is known to have an effect on the brain (e.g., Oldendorf, Hyman, Braun, & Oldendorf, 1972). Further, Michel Odent (2002) in his book *Primal Health* indicated that “[studies have shown that] the use of oxytocin in order to initiate labour is associated with more developmental and neurological abnormalities than the use of prostaglandins” (p. 179). Where there is epidural anaesthesia in labor, oxytocin is given to the mother intravenously. This follows studies that indicated that epidural anaesthesia reduces natural

levels of oxytocin (e.g., Goodfellow, Hull, Swaab, Dogterom, & Buijs, 1982). I hypothesised, therefore, that the effect of intravenous oxytocin and pethidine on a newborn might well be a profound one, contributing directly to the client's dyslexia and any comorbid conditions.

## EFT Method

EFT uses a meridian tapping protocol in which a phrase known as the "Setup Statement" first defines whatever issue the client is hoping to resolve and addresses any subconscious objections to success (Craig, 2011, pp. 79–80). The client repeats a self-acceptance statement while tapping lightly with two fingers, first on the side of her hand on the "karate chop" point (Craig, 2011, pp. 71–103), then on prescribed meridian points on the face, upper body, and hands. Throughout the process, the client's attention is focused on the issue or experience being addressed with a "reminder phrase" (Craig, 2011). Collectively, this process is often referred to as a "round" of tapping. The meridian model is based on the Chinese theory that pathways in the body disperse energy throughout the body and are accessible through the skin at various points (Kaptchuk, 2000).

The EFT "basic recipe" includes tapping on points on the face, upper body, and fingers, together with eye movements from the eye movement desensitization and reprocessing (EMDR) protocol (EMDR Association, n.d.) while tapping on the back of the hand. This eye movement while tapping on the back of the hand is known as "the 9 Gamut" (Craig, 2011, p. 206). Generally, practitioners, use the shorter sequence (Craig, 2011, p. 204), tapping only on acupoints on the face and upper body, unless they feel intuitively that the full basic recipe would be particularly beneficial. As is further elaborated below, in this case study, I chose at times to use the basic recipe and at other times to include the eye roll technique (Craig, 2011, p. 206) in a round of EFT. I chose to structure the sessions in this way because, having researched dyslexia and comorbid conditions with what appeared to be associated disorientation, I wanted to ensure that the client had some very clear and unmistakeable cues. Gary Craig has indicated that "there is some art involved" (2011, p. 207) in the appropriate use of the shortcuts and full basic recipe. This is my experience as an advanced practitioner.

Before and after each round of EFT, participants estimate their level of distress (either physical or emotional) on a 0–10 Subjective Units of Distress (SUD) Likert scale, with 0 being no distress at all and 10 being the highest distress possible. EFT practitioners use this scale to measure progress on the issue being addressed, with the aim being to reduce a client's SUD to zero through successive rounds of tapping.

## Session 1

The client chose "making things too complicated" as the theme for the first session. This brought up two specific incidents at school with two teachers—one a math teacher and the other an English teacher—which, as the session unfolded, could be seen as two sides of the same problem. In her math studies, the client said that she had always had a facility to jump from the problem to the solution, with the working in the middle being subconscious and fast. This is not unusual for people with dyslexia (Steeves, 1983). However, since the client had not had a diagnosis of dyslexia at that time in her schooling, her teachers did not realize that she was doing this and the client was not able to explain it to them.

When questioned, the client indicated that her teachers "always" told her she made things too complicated. On being guided to choose one particular incident, the client chose one in which her math teacher had told her that in working out her answers she was choosing a very long way around to the solution. She felt frustrated, angry, stupid, and powerless, unable to articulate what the problem was and, at the same time, unable to detail how she had arrived at the solution, which was generally correct. Unfortunately, at that time, marks were given for the working out but not the answer, so she could have a correct answer to a mathematical problem but not gain any marks for it. The solution she found for this was to create a complicated step-by-step working-out detail resulting in an incorrect answer. This gained her marks in math but left her feeling confused, frustrated, and tearful—a 9 on the SUD scale.

We started with some shortcut tapping rounds on what the teacher actually said to her. I had started the session by teaching the client the tapping points and explaining that I would say the setup statement and reminder phrases while tapping on myself, so that she could "mirror" me as

we proceeded through the session. On this basis, we started with the statement “Even though Mrs. [Teacher] said you’re making it too complicated, [client], I deeply and completely love and accept myself.” As the client felt unable to say that she deeply and completely loved and accepted herself, we added “or at least I want to” to the end of the setup phrase. At the shortcut tapping points (Craig, 2011, p. 204), we addressed how angry and frustrated she felt; how working out the math problems step by step was something she did not know how she did; and how, from her point of view, even one step was too complicated. Following the tapping rounds, the client actually came to agree with her teacher’s insight that she really was making things too complicated.

In the next rounds, we addressed the reason for the complication—her gift. In the first of these rounds, we used the full tapping round and the 9 Gamut process. From my view, this would rewire the client’s connections around this intuitive leap she made in math problem solving, helping her to go from perceiving it as a curse to perceiving it as a gift. We emphasized that what the client was doing was a gift that the teacher did not recognize, that the teacher had never come across anything like this before, that this skill really was and remains a gift; and that she may have had to pretend to work out math problems and get the wrong answer at school, but she was not at school anymore, so having to do things in a long-winded and complicated way was no longer an issue.

Further rounds followed to address the emotions remaining about this incident and the others like it, in order to help what Craig terms “the generalization process.” This term refers to the observation that when EFT is used to address a few connected specific events, the drop in SUD level tends to generalize to all related events (Craig, 2011, pp. 103–104). The client also then acknowledged that both she and her teacher were doing their best with what they had at the time. By the time the whole incident was “tapped out,” a term used in EFT to indicate a SUD score at or near zero, the client asserted that she no longer felt stupid, that she recognized that she thinks differently from other people, that she appreciated her gift, and that she understood that other people do not have the same gift. This allowed her to articulate the intuitive leap she makes and to appreciate that this is something she can now explain—and demonstrate—to others if appropriate.

I used the phrase “you’re making it too complicated, [client]” as a test to measure the client’s progress at several points during this part of the session. Testing—in this case with the phrase the client remembered from school—helps to bring up all the contributory factors to, or aspects of, an issue being addressed (Craig, 2011). Where the client cannot be taken to the original event, as here, I generally role-play the person who originally spoke the triggering phrase, repeating the phrase with relevant tone and body language, following a procedure demonstrated by Craig (2007). Each time the client experienced an emotion she could articulate (e.g., “oh, yeah, that’s anger—and it’s an 8!”), this emotion was used in the setup statement for the next round of tapping. When she could not articulate the emotion (e.g., Client: “I can feel it”; Practitioner: “What’s the emotion?”; Client: [Silence]; Practitioner: “Is it a physical feeling?”; Client: “Oh. Yes. I can feel it in my chest”; Practitioner: “Does it have a shape?”; Client: “Oh. Yes. It’s hard [*sic*]”; Practitioner: “OK. Does it have a color?”; Client: “Yes—it’s … grey”), the setup statement was constructed around the physical sensation, including color, shape, and the part of the body in which it was felt (e.g., “Even though I have this hard, grey feeling in my heart, I deeply and completely love and accept myself”).

As often happens in a session (Craig, 2007), toward the end of addressing the first incident, the client was reminded of another incident, this one involving a second teacher. The client was refocused on the first incident until the emotional charge for all the aspects of it was at zero on the SUD scale as tested above, before moving on to the second.

The second incident involved an English teacher whose name the client could not remember. The client was unable to describe the event without first going through several rounds of tapping to address her fear of remembering the event, anticipation of humiliation, the feeling of being totally alone, and the anger she felt toward the teacher.

The client eventually recalled that her class had been instructed to choose a subject from a list and to write a descriptive piece on this subject. Even thinking about the list sent the client’s SUD level up to 10. Having to choose something from a list stimulated intense distress and fear in the client, which took several rounds of tapping to reduce to zero. The client was clearly very

distressed at the memory of the specific event: She was sweating and tearful, necessitating that we spend several rounds of tapping to address the distress she experienced in actually writing her description, in knowing that her description was not long enough, in seeing her friends going up to the teacher with their finished descriptions while she continued to struggle with the task, and in dreading, with hindsight, what she was in for. She recalled that her teacher had taken the paper she handed in, scanned it, complained in front of the whole class of its incorrect spellings and brevity, screwed it up into a ball, and told the client to do the work again.

At that point in her academic life, the client's dyslexia had not been recognized. This type of descriptive writing is very difficult for people with dyslexia because of their sequencing difficulties (Marshall, 2005, p. 4). The problem that emerged was that unlike with the math problems, in which her step-by-step working-out process was too complicated, with writing she was unable to make the required description, from her point of view, complicated enough. These were clearly two ends of the same issue, which is likely the reason she recalled the two specific events together.

Several rounds of tapping were required for the client to be able to let go of the humiliation, the feeling of being singled out and bullied, of not being good enough, and of feeling confused, angry, and frustrated. Further rounds to target the distress arising from the incident addressed the teacher's shortcomings rather than those of the client—that his teaching methods may have been unorthodox, reflecting his own frustration—and also guided the client to acknowledge that she had achieved an acceptable grade in English at GCSE. Despite her teacher's shortcomings, the results indicated not only that she was good enough but that she had done very well indeed. At this point, a positive round of EFT was added about appreciating herself and her gift, together with being not only good enough but above average. This was followed by a round on letting go of her anger with the teacher, which was more of a burden on her than on her teacher. The exact point at which the reminder phrases become positive, as well as the wording of them, is something of an art based on the experience of the practitioner, how far the SUD level has come down, and what has been addressed in the session. Gary Craig (2007) demonstrates this repeatedly.

Toward the end of this part of the session, in order to test whether all the aspects had reduced to zero on the SUD scale, I tore out a page of paper, screwed it up into a ball, and threw at the client, saying, "this is spelled wrong and not long enough. Do it again!" The client reacted with a slight spike in distress—a 2 on the SUD scale. We then spent another round targeting her remaining fright, which I tested again with the same mimicry of her teacher's actions. This time the client burst out laughing.

However, the client indicated that there was a body sensation that remained. On questioning about this sensation, the client stated that following the above incident, outside in the corridor after class, the client's friends had seemed to just accept the whole situation: "Oh, that's just the way he teaches." Through several rounds of tapping, we addressed the client's perceptions that her friends' acceptance of the teacher's behavior reflected her own lack of "backbone" because she had not done anything about it, as well as her perceptions of their powerlessness and her own and the fact that they were all children at the time and felt helpless. We ended the session with a round to focus on accepting that these incidents occurred a long time ago and that the danger was over; the round guided the client to prefer and choose peace. The session finished with a floor-to-ceiling eye roll (Craig, 2011, p. 206) and shaking out any remaining tension.

On testing with a book chosen at random, the client's perception of printed matter had not changed. However, following this session, the client reported that her relationship with her siblings had changed completely. In particular, she and her brother, who generally argued—often violently—had not argued at all, despite her brother having "purposefully" tried to provoke her on many occasions. She reported that this was no longer a problem, that she was now more amused than irritated, and that she was enjoying her new friendly relationship with her siblings.

The client was further interested to note that she was now able to make lists. She was able to make lists of multiple items that were sequenced in the correct order, and she could now remember them, also in the right order. Lists—that is, sequencing—no longer confused or scared her. She understood the process and was able to undertake sequencing activities as if she had never had problems with sequencing in the first place.

## Session 2

The client reported that her newfound sequencing abilities had “held” since the previous session. She also reported that she continued to have a friendly relationship with her brother.

Because dyslexia is considered a development issue, I used the second session to concentrate on prebirth issues with the client. We had previously discussed these issues, and the client had expressed her willingness to take this approach.

I began by directing the client to close her eyes, to think about being a baby in the womb, and to tell me how the baby felt. While the client had her eyes closed, I tapped a heartbeat rhythm on the table between us and asked the client how she felt. Supported and guided visualisation is an advanced practitioner technique. Examples of this can be found in Craig (2007).

The client indicated that she felt both “really comfortable” and “uneasy” at the same time. There followed a shortcut round of tapping in which we targeted the client’s uneasiness and her state of not knowing why she felt this way. In the setup statement, the phrase “I know I’m a good kid and very much wanted” was substituted for the usual “I deeply and completely love and accept myself.” As the round progressed, the idea of stress surfaced and was added to the round.

A further “tuning in” to the baby followed (as described above), accompanied by the heartbeat simulation. The client indicated that she no longer felt uneasy but fearful. The client assessed the level of fear felt by the baby as a 10 on the SUD scale, which was an increase on the previous round. It was interesting to note that the client felt fear only when tuning in to her baby self. When her eyes were open and she was interacting with the practitioner, she felt no fear at all.

A further round followed, substituting “I know I’m a good baby and my mummy loves me” for the usual “I deeply and completely love and accept myself” as the setup statement. Based on the fearfulness experienced by the client (outlined above), it seemed the right time to introduce the fear of death into the setup statement. As previously mentioned, the client had been the first live birth to her mother, whose previous pregnancy had ended at 20 weeks gestation with the death of the fetus, which then had to be removed surgically from her womb. After this round, the client reported that the baby’s fear had reduced slightly to

a 9 on the SUD scale, although she reported a new perception, which she called “fogginess” and rated an 8 on the SUD scale. On questioning, the client indicated that the fogginess was a green-gray color and that it prevented her from seeing the truth. Another round of tapping reduced the fear to 6/7 and the fogginess to 2. On the next round of tapping, we addressed the client’s perception that there was no room for the baby, and I guided the client to see the space as her own and to be willing to let all the fear and the fogginess go; this reduced her SUD level of fear to a 3 and the fogginess to zero.

The client then noticed that she felt that the fear had resolved into two places in her body: the umbilicus and the heart areas. In the next round, we concentrated on the fear hormones coming from the mother—the by-product of the mother’s fear of losing another baby—and being echoed back to her by the baby. Toward the end of this round, a few positive phrases were introduced to help the client let go of the fetal experience: “it was a long time ago,” “the danger’s past now,” “I was born and grew up,” “I survived,” and “I prefer peace.”

The client’s fear as assessed on the SUD scale spiked again at this point, revealing another aspect to the fetal experience. When tuning into the baby again, the client, when asked what she heard, indicated that she heard her mother crying. We therefore focused the next round of tapping around the fear of the baby hearing her mother crying, of feeling what her mother was feeling, of fearing that the outside world must be a terrible place if it made her mother cry, and of feeling that she did not want to be there.

At this time, I introduced humor at some of the tapping points, partly to lighten the mood, partly to “loosen off” the emotions, and partly to test how far the client had progressed. For example, we used the setup statement “my mummy’s sending me awful hormones … and I’m sending awful hormones right back!” The client laughed, indicating major progress, although the tenor of the rounds was still quite dark. At the end of this round, the fear the client reported had reduced to an SUD level of 3 again. The introduction of humor is an advanced EFT practitioner technique, demonstrated in Craig (2007).

The next round focused on the mother’s emotional state and the hormones communicating these emotions to the client as a fetus. This round introduced more humor, describing the fear and

anxiety experienced by the fetus as her mother's first present to her and the irony of the mother's generosity. A cognitive shift took place: The client described her mother as "crabby and emotional" during the pregnancy. This communicated itself to the baby through hormones shared through the umbilical cord, rendering the baby equally "crabby and emotional." I made the suggestion at some of the acupoints that this might have something to do with her dyslexia, her possible ADD, and possibly even her digestive problems. The client was clearly amused, laughing out loud at some of the acupoints as these suggestions were put to her. Again, toward the end of the round, I introduced positive phrases, suggesting that these particular hormonal "presents" were not ones she needed to hold on to, reminding her that she had survived and grown up and that it was appropriate to let these presents go, and again choosing peace in the reminder phrases.

The client then indicated that the baby felt "really sick." Given the nausea associated with pregnancy, this was not surprising. In the next round, we focused on the memory of her mother feeling sick and communicating that through hormonal activity and of the baby's experience of craving the foods her mother craved and feeling that life as she experienced it in the womb was not something she was happy with. Again, I injected humor into the round at various points, along the lines of these experiences being more presents from her mother. The client was laughing throughout this round, indicating very good progress. The progress was confirmed by the client on her SUD rating, which she reported was a 2 for both the fear and nausea.

In the next round, we focused on the experience of feeling sick with fear, of needing constant reassurance, and of wanting to go home. As the round continued, anger surfaced, which was countered at various points toward the second half of the round, with the client expressing a humorous determination to throw a tantrum in a public place at the first opportunity.

Interestingly, the client began to feel nauseated in her adult self, reporting that her SUD level had spiked to a 10. When she tuned in to herself as a baby, however, she indicated that there was now nothing of that experience left for her to talk about. I speculated that this indicated that the emotional charge left over from the prebirth experience had been fully integrated into the adult self,

leaving only the nausea, which the client was then experiencing as an adult.

In the next round, we focused on the fact that the client felt sick about having carried the emotional burden of her mother's miscarriage around for her whole life. I guided the client through a full round with the 9 Gamut protocol, finishing with a floor-to-ceiling eye roll. She reported that her distress had been reduced to a 2 on the SUD scale and described it as being centered in her throat as a "greeny-brown sludge" that did not want to leave. Interestingly, with the setup statement built around describing the emotional sludge as "refuse" (i.e., rubbish or trash), the client was unable to say "refuse" but kept saying "refuge" instead. The setup statement was changed to reflect this—the emotional sludge had been her *refuge* all these years, enabling her to throw tantrums throughout her life instead of dealing with her problems in an adult way. The reminder phrases reflected this, provoking laughter in the client. The following rounds focused on visualizing herself free of the emotional sludge, on choosing to show her true compassionate self, filled with love; the rounds emphasized her caring nature, filled with positive qualities, and her self-confidence and surprises.

At the end of these rounds, the client indicated that her SUD levels on everything were down to zero.

At this point in time, I chose a book at random and asked the client to open it at random and to read a passage out loud. She was asked to indicate on a scale of 0 (*not comfortable at all*) to 10 (*very comfortable*) how comfortable she was doing this. She was surprised to find that the letters did not seem to be moving around any more. However, she did admit that they were still raised off the page and three-dimensional. The client then indicated on the scale described above that she felt about a 7 level of comfort. Some discussion followed on the nature of the distraction caused by the print being perceived as hovering above the page and being three-dimensional rather than flat. I was interested when the client said that she finds it valuable and useful that her "mind's eye" is able to give her 3-D information. But the fact that the mind's eye seemed to have no anchor point and was out of her control was distracting and not useful at all.

There followed a round designed to anchor her mind's eye just above and behind the crown of her head, while leaving her able to control it. At

the end of the round, she exclaimed that she had not realized that she was dizzy all the time, but she now knew she had been, because for the first time in her life she did not feel dizzy. She agreed that she could judge whether she felt dizzy only if she knew what “dizzy” and “not dizzy” felt like and could compare them, which she was now able to do.

I then chose another book at random and asked the client to read a passage out loud. The client was amazed to experience the writing on the page as flat print that stayed in the same place and made the passage easy to read.

The result of this session—the dyslexia symptoms disappearing altogether, with its accompanying disorientation also disappearing—was astonishing. I, too, was taken aback at the complete change in the client and was keen to see whether the results would “hold” in the long term.

### Session 3

At the beginning of this third and final session, the client indicated that her dyslexia symptoms had not reappeared unless she was tired. Printed matter remained flat on the page, and her mind’s eye remained anchored unless she wanted to look at her surroundings from another vantage point. When she was tired, however, her mind’s eye loosed its anchor and began to “dart about” again. Nevertheless, even when she was tired, she was able to reanchor her mind’s eye.

Conversely, the client complained that EFT “didn’t work.” In the next sentence, she complained that EFT was “too fast.” There followed some discussion, during which I reminded the client that she was now able to read and sequence with ease, that she had a totally different relationship with her brother, and that she no longer felt dizzy. The client appeared to be confused and then agreed that this had been the result of the two previous EFT sessions.

On further discussion, it emerged that the client felt that the changes brought about with EFT were so fast and profound that she could not cope with them.

On the basis that EFT is at its most effective when addressing a specific event (Craig, 2011, pp. 100–103), I asked the client whether she could remember another time when she felt similar discomfort with profound change. After she had thought about it for a while and come up

with nothing, I suggested her parents’ divorce, a change of school, a house move, or some other major change in her life as possibilities. The client rejected all these suggestions, so I addressed the first round in this session globally at the client’s discomfort with the way EFT works, its speed, and the client’s fear of not knowing who she would be without her dyslexia and its associated issues. The client reported that her SUD level was a 10 at the beginning of this round; it remained there after the round as well. When a feeling is directly addressed with a round of EFT tapping and there is no change at all, this is generally an indication that the feeling is associated with something in the past (Craig, 2007). Because the client had already indicated that she could not remember an event that might be relevant, I returned to the original structure of the sessions in order to suggest that we work on birth process.

Next I talked to the client about the birth process, which is a sudden and profound change, suggesting that this might be relevant. The client agreed to proceed and was guided into an imaginative exploration of how the birth process might have felt to her.

At first there was not much information to act upon, but I took what the client said, constructed a setup statement, and tapped on the shortcut acupoints with the client. The phrase “I’m a good baby and my mummy loves me” was again substituted at the end of the setup statement for the more usual “I deeply and completely love and accept myself.” Following this round, the client’s self-reported SUD level reduced to a 7.

The next round focused on the transition from one state to another and the client’s discomfort with that process. By the end of the round, the client exhibited a cognitive shift: “if it’s going to happen anyway, I’d rather it was over and done with *quickly*” (my italics), and her SUD level had reduced to a 5.

The following two rounds concentrated on sensation rather than emotion—an adaptation of the “Chasing the Pain” (Craig, 2007) technique, matching the tapping rounds to the changing sensations experienced by the client. The SUD levels relating to the sensations reduced to zero, then immediately spiked to a 5 on the SUD scale as the client experienced nausea.

Over the next few rounds, we addressed the nausea, medication, and fetal monitor, together with the client’s feeling of being forced to go

where she did not want to go. I now emphasized the concept of giving her body permission to let go of the memory of the medication given to the mother in childbirth and permission to complete the birth transition, leaving behind what she did not need and moving forward into life. I was fascinated to see the client exhibit signs of being high on pethidine at this time, although this was 45-min into the session, and she had had no opportunity to take any drugs for the previous hour at least and had shown no signs of being high before this time in the session. The client had been complaining of feeling a bit dizzy, "spaced out," confused, and not very sure where she was. As we addressed these feelings by tapping on them, she became more and more relaxed and giggly. At one point she spent just under a minute giggling helplessly for no apparent reason.

In the next round, I focused the client on acknowledging the fact that the baby had also been affected by the medication, to let go of the shock of birth and of the effects of the medication, to complete the birth process, and to acknowledge that the process had been completed as the baby was placed in her mother's arms. I then guided the client in a visualization of being in her mother's arms, opening her eyes, and bonding deeply with her mother. Next I tapped on the client with phrases designed to bring the client into the present, with an acknowledgment that the birth process was a long time ago, that she survived, and that she was now an adult embracing her adulthood and facing the future with confidence.

In the next round, we focused on dizziness, which seemed to be the emergence of another aspect of the dyslexic dizziness dealt with in the previous session. Following this, the client appeared high again, so I constructed a setup statement and round of tapping designed to deal with this and bring the client's system to coherence, focusing the client on acknowledging that the experience of medication during birth was a long time ago and to choose coherence and authentic happiness.

In the last round, we focused on the client's belief that her issues would recur in the future and that EFT, being energy work, was not real, that matter and energy are not connected. I introduced positive phrases that incorporated examples of energy and matter and of emotions and matter being connected even in her own experience: When she is angry, she experiences life differently than when she is happy, for example. This was a long

round, lasting 4 or 5 min, guiding her to release the disappointments she had had in the past in treatment effects that had lasted for a little while and then left her feeling that she had hit a brick wall when all of her dyslexia issues returned in full force. We focused on letting those experiences go and replacing the space left by her dyslexia issues with more positive emotions, positive experiences, and coherence.

I found this session fascinating, particularly in those rounds when the client presented all the signs of being high on a drug given during the birth process. The idea that medication given to the mother during labor is communicated to the baby is not new (see, e.g., Datta, Kodali, & Segal, 2010). However, that the client presented as if she were actually high on the medication more than 20 years later was, at the very least, startling, lending support to Odent's (2002) assertion that medical intervention in the birth process has a profound effect in later life.

The client reported over the next few weeks that she no longer suffered from the emotional outbursts she was used to. Even when irritated, she remained in control of her emotions. On follow-up 1 month later, the client reported that she now had a job, which she enjoyed. She volunteered that she would not have had the confidence to apply for the job without the EFT.

## Discussion

Dyslexia is a developmental condition, and therefore whether a "cure" is possible is open to debate. The consensus seems to be that people with dyslexia require a great deal of help in order to be able to function in a culture that places great emphasis on reading, writing, and sequencing (e.g., Hulme & Snowling, 2009). The help a person with dyslexia, whether child or adult, requires is expensive and time consuming. Even when such help is available, the individual is often left with a daily struggle to understand and function fully in the world and rarely able to fulfil his or her full potential. A kind of intellectual prison is the daily experience of many people with dyslexia.

According to Davis (1997), the dyslexic experience is one that is disorienting because of the person's ability to see many physical perspectives at the same time, which is why people with dyslexia have so many problems with reading: Print is perceived as raised off the page as the mind of

the dyslexic person attempts to render it into the three-dimensional perspective it is used to. However, the dyslexic perspective could be particularly useful in such careers as engineering, for example, where this ability to conceptualize would be a distinct advantage.

As noted earlier, the client's main desired outcomes were that she should see improvement in her reading, understanding, and concentration. From that point of view, this case study was a success, resulting, as it did, in her perception that her mind's eye was under her control, in the change in her experience of printed matter as flat on the surface on which it was printed, and in the disappearance of the disorientation she experienced. Associated issues around general perception also improved dramatically, resurfacing slightly only when she was tired. Furthermore, she felt that she could bring these issues back under her control with a little concentration.

The dyslexic perception, far from being "cured," was experienced by the client as being under her control. From this perspective, the case study was not only successful but exceptionally so. Additionally, her emotional issues, as described earlier, were also dramatically improved after the third session. Her difficulties with sequencing also appeared to be greatly improved after the first session, as if they had never existed.

In view of the above, I argue that sequencing issues, disorientation, and emotional issues can all be successfully treated separately. Whether they are actually discrete issues, however, is not clear and requires further study.

It is worth noting that between Sessions 2 and 3, the client appeared to experience some depression concerning her fears about the efficacy of the process and the likelihood of it being any more permanent than previous modalities. With hindsight, this could have been addressed earlier in the case study, and I would suggest that it might well be useful to address any possible discomfort during the process in the first session in any further case studies. This might take the form of setup phrases in the first session around the process being as enjoyable as possible in order to reduce the client's discomfort with such profound change.

Finally, it should be noted that all people are different and that people with dyslexia are likely to experience their dyslexia differently as well. This may pose a problem in the design and comparison of future case studies. Further research is

necessary to discover whether this approach—with a focus on sequencing, prebirth, and birth process—would be an appropriate one for all individuals with dyslexia.

Although this case study met its expressed goals, additional case studies are needed in order to discover whether this case study was unique to this particular client and whether all—or even most—individuals with dyslexia can be supported through this process, enabling them to control their unique abilities, thus freeing them to exercise their full intellectual capacity.

## References

- Benor, D. J., Ledger, K., Toussaint, L., Hett, G., & Zaccaro, D. (2009). Pilot study of Emotional Freedom Techniques, wholistic hybrid derived from eye movement desensitization and reprocessing and Emotional Freedom Technique, and cognitive behavioral therapy for treatment of test anxiety in university students. *Explore*, 5, 338–340. doi:10.1016/j.explore.2009.08.001
- Bishop, D. (2006). Developmental cognitive genetics: How psychology can inform genetics and vice versa. *Quarterly Journal of Experimental Psychology*, 59, 1153–1168. doi:10.1080/17470210500489372
- Black, M., Shetty, A., & Bhattacharya, S. (2008). Obstetric outcomes subsequent to intrauterine death in the first pregnancy. *BJOG: An International Journal of Obstetrics & Gynaecology*, 115, 269–274.
- Church, D., & Brooks, A. J. (2010). The effect of brief Emotional Freedom Techniques self-intervention on anxiety, depression, pain, and cravings in health care workers. *Integrative Medicine: A Clinician's Journal*, 9, 40–43.
- Church, D., & Downs, D. (2011). *Critical incident recall and sport confidence changes after a brief application of Emotional Freedom Techniques*. Manuscript submitted for publication.
- Craig, G. (Producer). (2007). *EFT training libraries* [DVD set]. Out of production but available for hire from EFTUniverse.com.
- Craig, G. (2011). *The EFT manual* (2nd ed.). Santa Rosa, CA: Energy Psychology Press.
- Datta, S., Kodali, B. S., & Segal, S. (2010). Effects of epidural analgesia on labor and the infant. In *Obstetric anesthesia handbook* (5th ed., pp. 151–161). New York, NY: Springer. doi:10.1007/978-0-387-88602-2\_10
- Davis, R. D., with Braun, E. M. (1997). *The gift of dyslexia: Why some of the brightest people can't read and how they can learn*. London, England: Souvenir Press.
- Definition of Dyslexia. (2003, September 12). In *MedicineNet*. Retrieved from <http://www.medterms.com/script/main/art.asp?articlekey=3138>
- Dyslexia Research Trust. (n.d.). *Related conditions*. Retrieved from <http://www.dyslexic.org.uk/related.htm>
- EMDR Association. (n.d.). *What is EMDR therapy?* Retrieved from <http://www.emdrassociation.org.uk/home/index.htm>
- Gabrieli, J. (2009, July 17). Dyslexia: A new synergy between education and cognitive neuroscience. *Science*, 325, 280–283. doi:10.1126/science.1171999

- Germanò, E., Gagliano, A., & Curatolo, P. (2010). Comorbidity of ADHD and dyslexia. *Developmental Neuropsychology*, 35, 475–493. doi:10.1080/87565641.2010.494748
- Goodfellow, C. F., Hull, M. G. R., Swaab, D. F., Dogterom, J., & Buijs, R. M. (1982). Oxytocin deficiency at delivery with epidural analgesia. *BJOG: An International Journal of Obstetrics & Gynaecology*, 90, 214–219.
- Hulme, C., & Snowling, M. (2009). *Developmental disorders of language learning and cognition*. Chichester, England: Wiley-Blackwell.
- Huner, S. V., & Mann, V. (2010). A comprehensive profile of decoding and comprehension in autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 40, 485–493. doi:10.1007/s10803-009-0892-3
- Kaptchuk, T. J. (2000). *The web that has no weaver*. New York, NY: McGraw-Hill.
- Marshall, A. (2005). *Children with dyslexia: All you need to ensure your child's success*. Newton Abbot, England: David & Charles.
- Massey, R. (n.d.). *Vanishing twin syndrome and womb memories*. Retrieved from [http://eftuniverse.com/index.php?option=com\\_content&view=article&id=9368](http://eftuniverse.com/index.php?option=com_content&view=article&id=9368)
- Morris, B. K. (n.d.). *Autism spectrum disorders fact sheet*. Retrieved from <http://www.autism-help.org/comorbid-dyslexia-autism.htm>
- Odent, M. (2002). *Primal health: Understanding the critical period between conception and the first birthday*. Forest Row, England: Temple Lodge.
- Oldendorf, W. H., Hyman, S., Braun, L., & Oldendorf, S. L. (1972, December 1). Blood-brain barrier: Penetration of morphine, codeine, heroin, and methadone after carotid injection. *Science*, 178, 984–986. doi:10.1126/science.178.4064.984
- Rowe, J. (2005). The effects of EFT on long-term psychological symptoms. *Counseling and Clinical Psychology Journal*, 2, 104.
- Sezgin, N., & Özcan, B. (2009). The effect of Progressive Muscular Relaxation and Emotional Freedom Techniques on test anxiety in high school students: A randomized controlled trial. *Energy Psychology: Theory, Research, and Treatment*, 1(1).
- Silver, R. M. (2007). Fetal death. *Obstetrics and Gynecology*, 109, 153–167. doi:10.1097/01.AOG.0000248537.89739.96
- Steeves, K. J. (1983). Memory as a factor in the computational efficiency of dyslexic children with high abstract reasoning ability. *Annals of Dyslexia*, 33, 141–152. doi:10.1007/BF02648001
- Wells, S. (n.d.). *Dyslexia, reading skills, and comprehension skills improve*. Retrieved from [http://eftuniverse.com/index.php?option=com\\_content&view=article&id=10548](http://eftuniverse.com/index.php?option=com_content&view=article&id=10548)
- Wells, S., Polglase, K., Andrews, H. B., Carrington, P., & Baker, A. H. (2003). Evaluation of a meridian-based intervention, Emotional Freedom Techniques (EFT), for reducing specific phobias of small animals. *Journal of Clinical Psychology*, 59, 943–966. doi:10.1002/jclp.10189
- Williams, E. L., & Casanova, M. F. (2009). Autism and dyslexia: A spectrum of cognitive styles as defined by minicolumnar morphometry. *Medical Hypotheses*, 74, 59–62. doi:10.1016/j.mehy.2009.08.003

# Psychosocial Genomics: A New Vision of the Psychotherapeutic Arts

*Richard Hill*

*University of Sydney, New South Wales, Australia*

## Abstract

The new field of psychosocial genomics was first proposed by Ernest Rossi in 2002 and has been addressed progressively in articles, papers, books, and conference presentations. The conceptual principle of studying the nature of activity-dependent and experience-dependent gene expression and neurogenesis, in relation to therapeutic practice, health, and well-being, is now being addressed by a range of research in a variety of disciplines. A current definition of psychosocial genomics is presented in this paper. Descriptions of current knowledge and understanding of gene expression at the biological level provide a platform for understanding the relationship between fundamental research

and translational research applicable to psychotherapeutic practice. Rossi encouraged the formation of international psychosocial genomics research groups for exploring these possibilities in academic institutions, government laboratories and health services, and professional medical and psychological societies. This article extends an open call for further organization and research in this new vision, and for the development and facilitation of psychosocial genomics in translational research from laboratory to clinical practice.

**Keywords:** Epigenetics, genomics, brain, stress, consciousness, hypnosis, neurogenesis

**Richard Hill, MA**, University of Sydney, New South Wales, Australia; International Psychosocial Genomics Research Group, Los Osos, California. **Correspondence:** Richard Hill, PO Box 124, Gordon NSW 2072, Australia. Email: richhill@iinet.net.au. **Acknowledgements:** The author acknowledges Ernest Rossi and the International Psychosocial Genomics Research Group for their assistance in preparation and review. **Disclosures:** The author declares no conflicts of interest.

## Definition and Description of the New Field of Psychosocial Genomics

Every new approach needs a clear definition that acts as a sound foundation for the future. It needs to be simple, in order to both provide inspiration and open doorways for future research and investigation. Ernest Rossi composed this statement (personal communication): "Psychosocial genomics is the study of how psychological and social experience modulates gene expression in health and illness."

We now know that being awake, asleep, or dreaming correlates with the expression of different genes in the brain and body (Riberio, Simões, & Nicolelis, 2008; Ridley, 2003). Likewise, emotional states such as being in love, excited,

depressed, stressed, relaxed, or lonely are related to different patterns of gene expression (Dusek et al., 2008; Schulkin, Gold, & McEwen, 1998). Gene expression is critical to the process of synthesizing the proteins required to sustain life and living. Single-stranded copies of specific lengths of our DNA are made through biochemical processes to create messenger RNA. The RNA moves out of the nucleus into the body of the cell, where another set of biochemical processes translates the information encoded in the RNA into chains of amino acids that become the proteins our bodies employ in biological activities. Some genes are expressed in the regulated process of maintaining living requirements, while other genes are expressed in response to some experiential stimulus. This is called *activity-dependent gene expression*.

It now is possible to study how therapeutic hypnosis, meditation, and many other psychological and spiritual rituals can not only stimulate or repress gene expression but also change the way in which genes are expressed. Many researchers have believed this is the answer to the many questions related to the so-called "Mind-Body Problem": How can the mind influence the body? How

does the placebo response work? Why do happy people live longer and healthier lives? How and why does psychological depression actually reduce the volume of neural tissue in the hippocampus of the brain?

## Introduction to Psychosocial Genomics

Ernest Rossi (2002a) was the first to publish a proposal for the “creation of a new discipline, to be called ‘*psychosocial genomics*,’ to explore how the psychological dramas and social encounters of everyday life can turn on activity-dependent gene expression and neurogenesis in ways that optimize performance health and well being” (p. 13). For the past 40 years Rossi has been publishing prescient ideas, such as the relationship of genes and proteins to the experience of dreams (Rossi, 1972; Rossi, 1986; Rossi, 2002b) and the deeper biological nature of mind–body healing (Rossi & Cheek, 1988). Rossi’s suggestions that mental activities, including therapeutic hypnosis, are influencing the biology of the client have proved to be inspiringly accurate. Rossi’s ideas have finally been demonstrated through a recent study analyzing changes gene expression associated with a therapeutic hypnosis session (Rossi et al., 2008; Atkinson et al., 2010). The pilot study was restricted to three participants and sought to establish in-principle protocols for larger and more rigorous experiments in the future. Whole blood samples were taken before, 1 hr after, and 24 hr after the administration of a positive experience of therapeutic hypnosis known as Creative Psychosocial Genomic Healing Experience (CPGHE). Leucocytes (white blood cells) were analyzed for upregulated and downregulated gene expression. In his analysis of Rossi’s subjects, Atkinson (2010) found that 15 immediate early genes were expressed in the 1-hr samples and a further cascade of 77 genes was expressed in the 24-hr samples. Gene set enrichment analysis (GSEA) indicated an upregulation of genes characteristic of stem cell growth, a reduction in cellular oxidative stress, and a reduction in chronic inflammatory processes. The study is described in more detail below. Further studies are planned, and preliminary work, which has yet to be published, has been conducted with a larger group. These experiments have only become possible since the development of gene expression measuring techniques, such as the DNA microarray (Shalon, Smith, & Brown, 1996) and

others (Ronald et al., 2005; Yeung, Medvedovic, & Bumgarner, 2003).

In an intellectual climate emphasizing evidence-based practice, we now have the methods and the tools to provide evidence for the benefit and effectiveness of mind–body therapeutics. There is ample observational and phenomenological reporting of the effectiveness of therapeutic hypnosis (Cyna, McAuliffe, & Andrew, 2004; Gonsalkorale, Miller, Afzal, & Whorwell, 2003), as well as growing literature on the neuroscience of hypnosis (Dienes et al., 2009; McGeown, Mazzoni, Venneri, & Kirsch, 2009). The analysis of gene expression has provided further empirical evidence to confirm and validate these observations, strengthen the confidence of practitioners, and enhance the security of clients in the biological efficacy of treatment. I believe that psychosocial genomic research has the potential to produce the most important advances in the understanding of noninvasive health and healing practices since the neuroscience breakthroughs made possible by brain-scanning techniques such as MRI and fMRI. Like the process of gene expression itself, there is not just a single action and reaction, but a cascading cycle of activity that expands into multiple and unexpected areas. Rossi’s (2006) current thinking has taken us further by seeking to draw closer together our complex biological processes and their interplay with the experience of consciousness.

## The Hard Problem of Consciousness and Psychotherapeutics

David Chalmers (1996) presented the “hard problem of consciousness,” which asks how it is possible that physical processes (like gene expression and neuronal firing) give rise to a subjective experience. Chalmers called for extra ingredients to close this “explanatory gap.” Through psychosocial genomic research we are discovering more about the intricate web of activity that both responds to consciousness and also creates consciousness. It is a bidirectional, dynamically linked cycle. Rossi has long since described the dynamics of a four-stage creative cycle reflected throughout biology and philosophy (Rossi, 2002). He now draws our attention to experience-and activity-dependent gene expression as one of the extra ingredients Chalmers calls for. We can contemplate a Darwinian coevolution of the processes of life and the qualia of consciousness.

This lends supports to the view that the qualia of consciousness (our subjective feeling of a mental experience) are a coevolving development of mind and the brain. It is entirely natural that biological and psychological processes have evolved together. The research literature outlines how life emerged from the nonbiological chemical soup some 4 billion years ago, into an RNA reproducible world. This RNA world eventually evolved into a DNA world. DNA meant that biological information remained stable during replication and enabled the long process of Darwinian evolution (Gilbert, 1986; Yarus, 2010). The suggestion, however, of a coevolution of the intangible qualia of consciousness is more difficult to grasp. It requires mathematical complexity theory and quantum concepts for a broad vision of the evolution of life and consciousness. Most simply stated: changes in DNA and gene expression are the fundamental basis of change in our biology, behavior, and consciousness over time. This is fundamental evolutionary theory. Most important for therapeutic practice, there now is research that has shown how mental and emotional activity and life experiences have a direct effect on gene expression, brain plasticity, and the functioning of our biology. This growing evidence of a bidirectional relationship between mind and body invites the conceptual possibility that physiological functions and the qualia of consciousness are coexistent and relational aspects of evolutionary change (Atkinson et al., 2010; Coplan et al., 2011; Dusek et al., 2010; Gatt et al., 2010; McGowan & Szyf, 2010; Reichardt, Umland, Bauer, Kretz, & Schütz, 2000; Rossi et al., 2008; Yehuda et al., 2009).

Although we will not investigate that further here, it is relevant to reflect on therapeutic hypnosis as one of a number of practices that utilize implicit and explicit mental activity on a regular basis to facilitate change, healing, and well-being. It is now clear that the activity and experience that play out in a therapeutic session are engaging the whole body, on both the macro and micro levels. The details and evidence of these principles are why ongoing research is so important in helping us understand more clearly what actually happens to clients and to the therapist in the processes of therapy, in the activity of gene expression, and in the development of consciousness.

In a positive and practical light, Rossi (2002) described the possibilities of our new knowledge of genes and gene expression:

Humanity is now at another profound but little understood transition: we are making epochal discoveries about how everyone can learn to turn their genes on and off to create a better brain, health and well-being throughout their lifetime.... Genes are *inner resources* that we can all learn to use in a creative manner in daily life to construct and reconstruct our brain and mind for optimum health and well being. (p. 15)

## From Neuroscience to Creative Psychosocial Genomics

Psychosocial genomics emerged from Rossi's mind in an environment of extraordinary thinkers and practitioners. Rossi's mentor, Milton Erickson (1948/80), had a clear sense that hypnosis was not "the miraculous power of effecting therapeutic changes in the patient ... [but] ... that therapy results from an inner re-synthesis of the patient's behavior achieved by the patient himself" (p. 35).

It may not be necessary for a practitioner to have a detailed knowledge of neuroscience or genomics, but it is important for him or her to have some general understanding of the connections between psychological activity, gene expression, and brain plasticity. The ability of the brain to generate and regenerate new neurons and synaptic connections, generally known as brain plasticity, is not a new idea. That the morphology and chemistry of the brain could be altered in response to experience was first established in 1964 (Bennett, Diamond, Krech, & Rosenzweig, 1964; Hubel & Wiesel, 1965). That these changes could occur at any age was determined and confirmed by the "mother" of brain plasticity, Marian Diamond, in research on rats (Diamond, Krech, & Rosenzweig, 1964). Research into the brain flourished in the 1990s after President George Bush (1990) declared the Decade of the Brain, which facilitated much-needed funds and resources. It is not the knowledge of neuroscience that has been recent, but the wider application of this knowledge to human emotional health and well-being. Psychotherapy and psychology have developed largely in response to the observation of behavior. The inner workings of the brain were poorly understood and often quite erroneous in prior eras, as evidenced by the scholarly acceptance of phrenology, the interpretation of the meaning of the shape and size of the head (Combe, 1853). Following the

explosion of knowledge about the brain over the past two decades, it may seem strange to imagine that training in many therapies that deal directly with the mind and brain does not require any formal or detailed knowledge of the brain itself. This is expected to change over time.

Neuroscience research has given us insight into the mental states engendered by hypnosis. Appreciation of the changes in how the brain is working during absorption and focused attention (Dienes et al., 2009; McGeown et al., 2009) allows the therapist to be more conscious of what is happening to the client. The simplified message from neurological research is that there is different activity in various parts of the brain depending on the needs or conditions of the moment. Any given state of mind relates directly to which brain areas are active.

Interpersonal neurobiology defines the mind as “a process that regulates the flow of energy and information” (Siegel, 2006, p. 248). This definition can be applied to the wider processes of biology, which is also a flow of energy and information. Rapparini (2010) presented a complementary view of the mind from the qualia perspective: “[T]he mind is the qualia of the brain’s neural mechanisms, this is how the perceiver perceives himself, from within” (p. 169). Together these definitions embrace the relationship of mind to both the perception of living and the processes of living. If we think of the brain as not just the 100 billion neurons and 1 quadrillion synaptic connections in the skull but also the kilometers of neural threads throughout the body, we begin to see the extent of the energy and information that flows through the body (Gilbey, 2007; Siegel, 2012). In addition to this, we have an enormous array of messenger chemicals that are synthesized by the neural net and endocrine system that carry their packages of information through the transport system of arteries and veins (Hadley, 2000; Pert, 1999). It is now becoming clear that the deeper biochemical processes of genes and gene expression, which underlie the synthesis of these proteins, need to be taken into account in any credible theory of mind.

Discussions about the relationship between behavior, human experience, and the modulation of gene expression began to gain vigor at the turn of the century (Moore, 2001; Ridley, 2001), but they were preceded by prescient thinkers such as Nobel Laureate Eric Kandel, who proposed in 1989 that “changes in neuronal architecture [are]

changes that result from learned alterations in gene expression” (Kandel, 1989, p. 103). Kandel later (1998) made his position clear:

Insofar as Psychotherapy or Counseling is effective and produces long-term changes in behavior, it presumably does so through learning, by producing changes in Gene Expression that alter the strength of synaptic connections and structural changes ... of the brain ... Stated simply, the regulation of gene expression by social factors makes all bodily functions, including all functions of the brain, susceptible to social influences. (p. 460)

In this environment of fertile supposition, Rossi proposed his new field of investigation and described the following research foci for psychosocial genomics (2002, p.4):

- Behavioral state-related gene expression: How behavioral states such as sleeping, dreaming, consciousness, vigilance, stress, emotional arousal, and depression are associated with different patterns of gene expression.
- The novelty-numinosum-neurogenesis effect: Highly motivated states of consciousness that can turn on and focus gene expression, protein synthesis, neurotransmitters, and neurogenesis in our daily creative work of building a better brain.
- Experience or activity-dependent genes generate the synthesis of proteins and neurogenesis in the brain that encodes new memory, learning, and behavior.
- A lack of optimal gene expression and neurogenesis is now believed to be associated with psychological depression.
- *Immediate early genes, behavioral state-related gene expression, and activity-dependent gene expression* are implicated as the processes that can facilitate a deep psychobiological approach to therapeutic hypnosis and holistic healing.

These elements and their systems are contributors to a pattern of energy and information flow that enables our biology to function. Despite the extraordinary wonder and complexity of the brain and the wider neural system, the single vital source from which all of these biological are regulated is the DNA. The process that enables this

storehouse of information to function is gene expression. The complexity of activity that enables the genes in DNA to be expressed, and for an organism to thrive, may seem enormous. Yet, in the light of this complexity, the structure and function of DNA is surprisingly simple and elegant.

## Information, Consciousness, and DNA

DNA is constructed from only four base chemicals called nucleotides—adenine, guanine, cytosine, and thymine—which reside on the inner surface of two parallel, twisting, sugar and phosphate rails. DNA holds all the information required to produce and maintain a living organism. It is a storehouse of information, an archive, a script. DNA is able to be reproduced either in specific sections (gene expression) or in whole (reproduction). A gene is a specific and limited sequence of base pairs that replicate through a series of processes that involves the single-stranded RNA molecule. The entire DNA structure is called the genome (Watson & Crick, 1953).

The structure of DNA is under continuous review. Recent research has suggested that there are more than four base chemicals. It is already known that RNA utilises a different base chemical called uracil instead of thymine. Thymine is the same as uracil, but with an additional methyl group. Cells divide thousands of times during the lifetime of an organism, and certain genes may express millions of times, which helps us to understand the persistent nature of mutation as a driver of evolutionary change. Changes that occur in the DNA that are not inherited are called epigenetic. Epigenetic changes occur during the life cycle of the organism. An epigenetic methylation of cytosine creates a new base called 5-methylcytosine (Lister & Ecker, 2009). This new base can go through changes that alter the DNA sequence and therefore can alter the way the gene is expressed. A sixth variation occurs when a hydroxyl group and a methyl group are added to cytosine, creating 5-hydroxymethylcytosine (Munzel, Globish, & Carell, 2011). This change affects the activity of a gene and may halt gene expression, a phenomenon that biologists refer to as “silencing” the gene. There are two more suspected base constructs: 5-formycytosine and 5-carboxylcytosine (Ito et al., 2011). Very recent research has shown that our DNA and the protein creating RNA are

not rigidly stable or constrained to just four bases. The changeable nature of the bases may indicate that organisms are designed to respond to their experience with biological changes that can occur during a single lifetime, not the epochs required by random genetic mutation. Nurture can have very direct and far-reaching effects on the structures that nature originally made available.

The human genome has some 3.2 billion base pairs (nucleotides) and roughly 20–23,000 protein-coding genes that occupy fewer than 2% of the 46 chromosomes that make up the human genome (IHGSC, 2004). Interestingly, complexity of biological form is not necessarily related to the number of base pairs or genes. The single-celled *Amoeba dubia* has some 620 billion base pairs (Parfrey, Lahr, & Katz, 2008), the Californian poplar has some 45,555 genes (Tuskan et al., 2006), and the much-studied roundworm used in research, the 5cm *Caenorhabditis elegans*, has a similar number of genes to a human being (Linden, 2007). The key is how these genes are expressed. The human genome uses the majority of its DNA, called noncoding DNA, to create the tools to turn our 20,000+ protein coding genes into a massive variety and complexity of biological compounds and physiological structures that are still far from being thoroughly understood.

Rather than an ordered, methodical process, gene expression and the daily and hourly creation of our biological needs is a frantic, complex, self-organizing, adaptive system. Our inner world is a constantly shifting biochemical milieu that triggers and stimulates the myriad of inner functions in response to the nature of our experience every moment of the day and night. Gene expression is in response not only to physical experiences with the outside world or general needs of cell metabolism but also to emotional and mental processes that occur *because* of those experiences (Ridley, 2003; Rossi, 2002). Research has shown that genes that enable brain plasticity and learning are expressed after rats are given a spatial learning exercise (Guzowski, Setlow, Wagner, & McGaugh, 2001). Particular genes are expressed during sleep after meaningful experiences during the day, activating an interaction between the hippocampus and the cortex, in order to store memories and create associations with past experiences (Riberio et al., 2008). This, and more, is what can be expected to occur in a client following a successful therapeutic session.

## The Psychology of Activity-and Experience-Dependent Gene Expression

It may not be necessary to understand the molecular-genomic dynamics of activity-and experience-dependent gene expression at great depth, but in the same way we have been learning about the mind-brain relationships, it is important for us to grasp the basic principles and some fundamental examples of mind-gene relationships.

Gene expression is not a simple one-step process. Throughout the body, the Earth's biosphere, the solar system, and beyond, all systems are conceptually and mathematically complex. To create clarity, I have divided the activity of experience-and qualia-dependent gene expression into four main categories.

1. Experience-dependent gene expression that is triggered by general activity of transcription factors in normal cellular processes, for example, immune response, energy production (e.g., adenosine triphosphate (ATP)), and general, regular metabolic processes (Jacob & Monod, 1961; Nestler & Hyman, 2002).
2. Expression that is epigenetically turned on in response to specific activity, for example, memory, clock genes, circadian and ultradian rhythms (Kyriacou & Hastings, 2010; Levenson & Sweatt, 2005; Kyriacou & Hastings, 2010).
3. Expression that has been epigenetically silenced in response to experience and requires new experience to reframe, for example, experiences of trauma, insecure attachment, and negative environment resolved by new experience of therapy or general life experience (Mathews & Janusek, 2008; McGowan & Kato, 2008; Yehuda et al., 2009).
4. Pre-expression effects in relation to enhancement of expression, for example, enhancer RNA and postexpression to mRNA by disruption of translation, for example, microRNA, RNA-induced silencing complex (RISC) and RNA interference (RNAi). Included in this category of alterations to the structure and activity of RNA is alternative gene splicing. The first RNA copy of a gene

at the transcription stage is “edited” by removing noncoding introns and joining exons to produce mRNA. Alternative versions of the gene are produced by excluding or including various exons, which may then go on to translate into different proteins (Black, 2003; Gough, 2010; Kim et al., 2010; Mattick, 2010; Muthusamy, Bosenberg, & Wajapeyee, 2010; Ren, 2010; Shamron, 2010).

I am not going to expand on each of these categories here, since each requires further investigation. I will, however, briefly discuss some of the implications and applications of these processes to the practice of therapy and the deeper understanding of human behavior.

## Epigenetics, Psychotherapeutic Experience, and Evolution

Epigenetics has been a big topic in biology for the past decade, and it is now entering the realm of psychology and other disciplines (Allis, Jenuwein, & Reinberg, 2007). Epigenetic processes result in chemical additions to DNA strands that change the way in which genes can be expressed. Epigenetic processes occur during an organism's lifetime in response to the environment and the experience of the individual and may be passed to subsequent generations of cells through cell division and replication. This is important in understanding how experiences like trauma and insecure attachment are “remembered” in the biology of a human being. The field of medicine maintained for much of the 20th century that emotional issues were “just in the head.” We now know that if something is happening to a person in the realm of his or her feelings, perceptions, and/or behaviors, there may be a correlating change in that person's neurobiology, physiology, cellular function, and gene expression. Exactly what changes occur, how broadly they effect the individual, and how permanent they are have been subjects of much investigation and are of core interest in psychosocial genomics.

The detail of epigenetics can seem confusing, but the principal process is that sections of the DNA are “silenced” from expression by molecules, such as methyl groups that bond tightly to the bases, so that the factors that normally trigger gene expression (transcription factors) are unable

to attach to the area on the DNA that normally initiates gene expression (promoter regions). Researchers have found that neglectful mothering by female rats creates an epigenetic change to the DNA in the hippocampal region of the brains of her offspring. This change to the glucocorticoid receptor gene in the hippocampus of neglected rat pups renders them less able to handle stress and inclines them to be anxious and hypervigilant (Meaney & Szyf, 2005).

This epigenetic change is, however, an adaptive survival mechanism. It may not make for a happy rat pup, but the increased vigilance and low sense of being nurtured makes the pup work harder to find the mother and to secure a teat for feeding. Research has shown that similar epigenetic influences occur in human beings following childhood abuse (McGowan et al., 2009) and social adversity in early life (McGowan & Szyf, 2010). What is even more intriguing is that if that pup is moved to the litter of a nurturing mother rat, the epigenetic change is reversed, and the pup returns to being almost as unstressed as if it had been well-nurtured from the beginning (Meaney & Szyf, 2005). This is, quite simply, the way in which a negative experience alters us at a genomic level and how a positive experience, perhaps something like therapy or a good holiday, can rewrite an epigenetic memory and enable a mental reframing that resolves the issue. The positive experience triggers activity in the hippocampus that promotes reflection and meaning-making, especially at night and in dreams (Riberio et al., 2008).

Factors that promote neurogenesis and synaptogenesis are triggered to facilitate brain plasticity. The recent developments in understanding how to intervene in memory reconsolidation, in order to modify fearful memories, are directly related to gene expression (Ecker, Ticic, & Hulley, 2012; Feinstein, 2010). When a memory is recalled it returns, for a short period of time, to a labile state that is subject to protein synthesis in order to reconsolidate the memory. At the same time, there are body-wide effects, such as increases or decreases in cortisols and inflammatory interleukins that can stimulate changes to the way that different cells function in the visceral tissue (Field, Hernandez-Reif, Diego, Schanberg, & Kuhn, 2005).

In the practical sense, when a therapist works with a client, there are myriad processes that are triggered by the nature, quality, and relevance

of the therapeutic experience. Precisely what happens in the body after a therapeutic process that allows the mind to induce a change in the energy and information flow? This is the question that Rossi asked some decades ago. The International Psychosocial Genomics Research Group has been able to conduct the first study of therapeutic hypnosis that tests the relationship between psychotherapy and experience- and activity-dependent gene expression.

## The International Psychosocial Genomics Research Group

Many years after he had first proposed his hypothesis, Rossi was finally able to conduct a pilot study to investigate the gene expression that followed a therapeutic hypnosis process. Rossi had long since developed and worked with a nondirective, implicit form of therapeutic hypnosis that had been described as the “mirror hand” process. For the purposes of this research Rossi officially named the process the Creative Psychosocial Genomic Healing Experience (CPGHE). This title highlights the creative, interactive, nondirective nature of the process and its potential to create activity in the subject on all levels from mind to gene.

In association with colleagues at the University of Salerno, Italy, Rossi arranged for three volunteers to be tested. Peripheral blood was taken immediately before, within 1 hr after, and 24 hr after the CPGHE was conducted. The blood samples were treated according to the protocol recommended by the DNA microarray analysis service at the University of Padua and in line with previous protocol in the literature.

It was found that within 1 hr, 15 early response genes were up-regulated. At 24 hr there was further cascade of activity in 77 genes. The experiment successfully established a working protocol and demonstrated changes in activity-dependent gene expression (Rossi et al., 2008).

The DNA microarray data was further analyzed by other members of the research group, led by David Atkinson. The software program and gene database, GSEA, which is freely available on the web, was utilized to make a more detailed analysis of the gene expression that occurred. Results showed that there was beneficial change in relation to genes that regulate reduction in inflammatory processes, an upregulation in genes

that are characteristic of stem cell growth, and an upregulation of genes that reduce oxidative stress (Atkinson et al., 2010).

## An Open Call for Translational Research in Creative Psychosocial Genomics Healing Experience (CPGHE)

Rossi's (2011, in press) CPGHE now requires replication and extension. Equally, similar experiments that cover a wider range of patients, a wider range of cellular expression, and a wider range of mind-body practices are needed to push the door open wider. The implications for the practicing therapist are wide-reaching. I suggest that this may be as important to future health and well-being as were the breakthroughs in neurobiology with the development of scanning techniques such as MRI and fMRI.

The CPGHE calls for interdisciplinary cooperation among three groups: (a) cognitive-behavioral researchers, (b) DNA microarray laboratory researchers, and (c) bioinformatics research teams that perform computer software analyses of the meaning of the DNA microarray results (Rossi, 2005/2006; Rossi & Rossi, 2006).

Those with biological and/or genetic research training will see a plethora of future research questions that spring from the pilot study. If you are a practitioner, then it is important to gather data on the observed (therapist) and experienced (client) effectiveness of the CPGHE. The CPGHE is a protocol, framework, and recording system to assist in research that can be done in the therapy setting. Reference material is available for review, including the rationale, administration, and scoring of the CPGHE protocol, and may be found in Rossi (2011, in press). The protocol is also freely available online (Rossi, n.d.).

## Potential Discoveries in Future Psychosocial Genomics Research

Here are just a few examples of what might be found in future psychosocial genomics research:

- Rossi (2005/2006) wrote about the possibilities of exploring therapeutic hypnosis with DNA microarrays and suggested a number of candidate genes that might be expressed. Even within the

limitations of the pilot study, changes in the expression levels of a number of those genes were, indeed, noted. Rossi also noted a gene called CYP-17. This family of genes, the cytochrome P family, also includes CYP-24 and CYP-27. These genes facilitate processes that are vital for health. CYP-17 acts to enable the production of testosterone and estrogen. The CYP-24 and CYP-27 genes act in liver and the kidneys cells to catabolise vitamin D into its active form, 1-hydroxy D. This active form is a transcription factor for more than 200 known genes that are vital for the immune system (Hollick, 2004; Norman, 1985). It is fundamental in keeping cancerous cells from getting out of control (Garland et al., 2006) and is an important factor in depression and mental disorders (Ganji, Milone, Cody, McCarty, & Wang, 2010; Stewart & Harani, 2010). Complete processing of Vitamin D is necessary for multiple areas of health and well-being. Experimental evidence that a mind-based therapeutic process is stimulating gene expression of CYP-17 and/or CYP-24 and CYP-27 would not only strengthen the evidence for mind-based therapy but also integrate our understanding of the interplay between therapy and dietary nutrients. Is the stimulation of cytochrome P family genes one of the ways in which therapeutic hypnosis relieves depression and improves healing?

- Meta-analyses and literature reviews could bring disparate research together to encourage cross-referencing of ideas and facilitate combined research that maximizes available facilities and budgets. Just a few examples of disparate research that could be collectively reviewed or analyzed: Hyashi and his team found that laughter can positively regulate gene expression in patients with Type 2 diabetes (Hyashi et al., 2006); Campbell and his team investigated the gene expression activity in response to stress and the impact on eating disorders (Campbell, Mill, Uher, & Schmidt, 2011); and Kaptchuk et al. (2010), who tested the placebo response, made the surprising discovery that even when the subjects knew that they were taking a completely

inert substance, they improved. They were simply told that placebos have been shown in clinical studies to have a beneficial response “through mind–body self-healing processes.” With only that thought as inspiration, there was broad improvement in symptoms and quality of life. This raises the research question, what is the gene expression difference between hidden placebo and open placebo experiments?

- Research that incorporates a wide variety of noninvasive therapies and practices will benefit from, first, meta-studies, but ideally, concurrent studies to examine whatever variations and similarities exist between therapeutic practices and gene expression. Conceptual reviews of the link between successful psychotherapy and gene expression, as well as hypotheses for future investigation, are already appearing in the literature (Feinstein & Church, 2010; Rossi, 2002). Research that examines several different techniques in relation to different conditions and controls will lead to a clearer understanding of the similarities and variations between noninvasive therapies. Talk therapies, Eye Movement Desensitizing and Reprocessing, Emotional Freedom Techniques, meditation, mindfulness, sympathetic attention, and even positive intention will benefit from comparative studies of their effects on gene expression.
- As gene expression measurement tools become more sophisticated, it may be possible to develop a neuro-bio-genefeedback process in which researchers can train activity-dependent genes to turn on and turn off. It is only by learning more about how the mind-to-body relationship works that we will be able to harness the benefits of our knowledge for better health and well-being. Those practicing meditation or deep mental focus may be achieving positive genetic effects already. How are they doing it? Can we make the best tools more accessible to a wider population? Is science just around the corner from completely revolutionizing the way we manage our body-to-mind-to-body integration?

It is currently difficult to pursue genetic research due to high costs and technical difficulties, but those barriers are falling at a rapid rate. Fast and inexpensive gene expression analysis will open the door to many opportunities. Non-invasive treatments may be quickly assessed for their efficacy for a particular individual, permitting treatments that are tailored to the patient’s genetic susceptibilities. When we are able to monitor gene expression in neuronal tissue, it may be possible to intervene in traumatic memory issues, such as posttraumatic stress disorder, with therapies customized for a particular patient. Similar benefits may be possible for disrupted systems in complex neural circuits, as has been shown in subjects with obsessive-compulsive disorder. There are, potentially, many areas of mental health where benefit might be achieved without having to impose risky drug interventions or undertake extended periods of treatment while hoping for behavioral change.

These are some of the important implications for further research:

1. The existing research has achieved the difficult task of establishing protocols and achieving, in principle, results that are in line with expectations. This means that further research has a foundation for success.
2. The opportunity to have a deep and lasting effects on the health of future generations, especially in the area of preventative health, might not only improve the “happiness quotient” of our populations but also free up large amounts of money and resources that would otherwise be spent treating preventable disease.
3. The potential for the integration of diverse academic and clinical fields into a dynamic complex of knowledge can redirect the central focus of healthcare back to the whole person.
4. Individual testing for the epigenetic effects of particular therapies brings us closer to the ideal of each individual being able to find the best and most effective protocols to stimulate his or her individual healing.

Psychosocial genomics does not seek to be another disparate field of study but rather an umbrella that arches over a wide range of investigations using interdisciplinary research. The

challenge now is to make the vision a reality. We must push beyond the edges of current knowledge and understanding. This new frontier requires patience, as we must tread wisely into new territory. Yet we can approach it with enthusiasm because this field holds the nascent promise of a world in which we have the knowledge necessary to cure many chronic mind–body illnesses rather than just managing them.

## References

- Allis, C. D., Jenuwein, T., & Reinberg, D. (2007). *Epigenetics*. Cold Spring Harbor, NY: Cold Spring Harbor Press.
- Atkinson, D., Iannotti, S., Cozzolino, M., Castiglione, S., Cicatelli, A., ... Rossi, E. (2010). A new bioinformatics paradigm for the theory, research, and practice of therapeutic hypnosis. *American Journal of Clinical Hypnosis*, 3(1), 27–46. doi:10.1080/00029157.2010.10401745
- Bennett, E. L., Diamond, M. C., Krech, D., & Rosenzweig, M. R. (1964). Chemical and anatomical plasticity of the brain. *Science*, 164, 610–619. doi:10.1126/science.146.3644.610
- Black, D. L. (2003). Mechanisms of alternative pre-messenger RNA splicing. *Annual Reviews of Biochemistry*, 72, 291–336. doi:10.1146/annurev.biochem.72.121801.161720
- Bush, G. (1990). *Presidential Proclamation 6158*. Retrieved from Library of Congress website: <http://www.loc.gov/loc/brain/proclaim.html>
- Campbell, I. C., Mill, J., Uher, R., & Schmidt, U. (2011). Eating disorders, gene-environment interactions and epigenetics. *Neuroscience and Biobehavioral Reviews*, 35, 784–793. doi:10.1016/j.neubiorev.2010.09.012
- Chalmers, D. (1996). Facing up to the problem of consciousness. In S. Hammerhoff, A. Kaszniak, & A. Scott (Eds.), *Toward a science of consciousness: The first Tucson discussions and debates* (pp. 7–28). Cambridge, MA: MIT Press.
- Combe, G. (1853). *A system of phrenology* (5th ed.). Retrieved from <http://www.historyofphrenology.org.uk/system/principles.htm>
- Coplan, J. D., Abdallah, C. D., Kaufman, J., Gelernter, J., Smith, E. L. P., ... Nemeroff, C. B. (2011). Early-life stress, corticotrophin-releasing factor, and serotonin transporter gene: A pilot study. *Psychoneuroendocrinology*, 36, 289–293. doi:10.1016/j.psyneuen.2010.07.011
- Cyna, A. M., McAuliffe, G. L., & Andrew, M. I. (2004). Hypnosis for pain relief in labour and childbirth: A systematic review. *British Journal of Anaesthesia*, 93, 505–511. doi:10.1093/bja/aeh225
- Diamond, M. C., Krech, D., & Rosenzweig, M. R. (1964). The effects of an enriched environment on the rat cerebral cortex. *Journal of Comparative Neurology*, 123, 111–119. doi:10.1002/cne.901230110
- Dienes, Z., Brown, E., Hutton, S., Kirsch, I., Mazzoni, G., & Wright, D. (2009). Hypnotic suggestibility, cognitive inhibition, and dissociation. *Consciousness and Cognition*, 18, 837–847. doi:10.1016/j.concog.2009.07.009
- Dusek, J. A., Out, H. H., Wohlhueter, A. L., Bhasin, M., Zerbini, L. F., ... Benson, H., & Libermann, T. A. (2008). Genomic counter-stress changes induced by the relaxation response. *PLoS ONE*, 3(7), e2576. doi:10.1371/journal.pone.0002576
- Ecker, B., Ticic, R., & Hulley, L. (2012). *Unlocking the emotional brain: Eliminating symptoms at their roots using memory reconsolidation*. New York, NY: Routledge.
- Erickson, M. (1948/1980). Hypnotic Psychotherapy. In E. Rossi (Ed.), *The collected papers of Milton H. Erickson on hypnosis: Vol 4. Innovative hypnotherapy* (pp. 35–48). New York, NY: Irvington.
- Feinstein, D. (2010). Rapid treatment of PTSD: Why psychological exposure with acupoint tapping may be effective. *Psychotherapy*, 47, 385–402. doi:10.1037/a0021171
- Feinstein, D., & Church, D. (2010). Modulating gene expression through psychotherapy: The contribution of noninvasive somatic interventions. *Review of General Psychology*, 14, 283–295. doi:10.1037/a0021252
- Field, T., Hernandez-Reif, M., Diego, M., Schanbeg, S., & Kuhn, C. (2005). Cortisol decreases and serotonin and dopamine increase following massage therapy. *International Journal of Neuroscience*, 115, 1397–1413. doi:10.1080/00207450590956459
- Ganji, V., Milone, C., Cody, M. M., McCarty, F., & Wang, Y. T. (2010). Serum vitamin D concentrations are related to depression in young adult US population: The Third National Health and Nutrition Examination Survey. *International Archives of Medicine*, 3, 29–37. doi:10.1186/1755-7682-3-29
- Garland, C. F., Garland, F. C., Gorham, E. D., Lipkin, M., Newmark, H., Mohr, S. B., & Holick, M. F. (2006). The role of vitamin D in cancer prevention. *American Journal of Public Health*, 96, 252–261. doi:10.2105/AJPH.2004.045260
- Gatt, J. M., Nemeroff, C. B., Schofield, P. R., Paul, R. H., Clark, C. R., Gordon, E., & Williams, L. M. (2010). Early life stress combined with serotonin 3a receptor and brain-derived neurotrophic factor valine 66 to methionine genotypes impacts emotional brain and arousal correlates of risk for depression. *Biological Psychiatry*, 68, 818–824. doi:10.1016/j.biopsych.2010.06.025
- Gilbert, W. (1986). The RNA world. *Nature*, 319, 618. doi:10.1038/319618a0
- Gilbey, M. P. (2007). Sympathetic rhythms and nervous integration. *Clinical Experiments in Pharmacological Physiology*, 34, 356–361. doi:10.1111/j.1440-1681.2007.04587.x
- Gonsalkorale, W. M., Miller, V., Afzal, A., & Whorwell, P. J. (2003). Long-term benefits of hypnotherapy for irritable bowel syndrome. *Gut*, 52, 1623–1629. doi:10.1136/gut.52.11.1623
- Gough, N. R. (2010). Repressing repressors to make memories. *Science Signaling*, 3(137), ec263. doi:10.1126/scisignal.3137ec263
- Guzowski, J. F., Setlow, B., Wagner, E. K., & McGaugh, J. L. (2001). Experience-dependent gene expression in the rat hippocampus after spatial learning: A comparison of immediate-early genes Arc, c-fos, and zif268. *Journal Neuroscience*, 21, 5089–5098. (stopped)
- Hadley, M. E. (2000). *Endocrinology* (5th ed.). Upper Saddle River, NJ: Prentice Hall.
- Hollick, M. F. (2004). Sunlight and vitamin D for bone health and prevention of autoimmune diseases, cancers, and cardiovascular disease. *The American Journal of Clinical Nutrition*, 80(6 Suppl.), 1678S–1688S.
- Hubel, D. H., & Wiesel, T. N. (1965). Binocular interaction in striate cortex of kittens reared with artificial squint, *Journal of Neurophysiology*, 28, 1041–1059.
- Hyashi, T., Urayama, O., Kawai, K., Hayashi, K., Iwanaga, S., ... Murakami, K. (2006). Laughter regulates gene

- expression in patients with Type 2 diabetes. *Psychotherapy and Psychosomatics*, 75, 62–65. doi:10.1159/000089228
- IHGSC—International Human Genome Sequencing Consortium. (2004). Finishing the euchromatic sequence of the human genome. *Nature*, 431(7011), 931–945. doi:10.1038/nature03001
- Ito, S., Shen, L., Dai, Q., Wu, S. C., Collins, L. B., ... Zhang, Y. (2011). Tet proteins can convert 5-methylcytosine to 5-formylcytosine and 5-carboxylcytosine. *Science*, 333(6047), 1300–1303. doi:10.1126/science.1210597
- Jacob, F., & Monod, J. (1961). Genetic regulatory mechanisms in the synthesis of proteins. *Journal of Molecular Biology*, 3, 318–356. doi:10.1016/S0022-2836(61)80072-7
- Kandel, E. R. (1989). Genes, nerve cells, and the remembrance of things past. *Journal of Neuropsychiatry and Clinical Neuroscience*, 1, 103–125.
- Kandel, E. (1998). A new intellectual framework for psychiatry? *American Journal of Psychiatry*, 155, 460.
- Kaptchuk, T. J., Friedlander, E., Kelley, J. M., Sanchez, M. N., Kokkotou, E., ... Lembo, A. J. (2010). Placebos without deception: A randomized controlled trial in irritable bowel syndrome. *PLoS ONE*, 5(12), e15591. doi:10.1371/journal.pone.0015591.
- Kim, T., Hemberg, M., Gray, J. M., Costa, A. M., Bear, D. M., Wu, J., .... Greenberg, M. E. (2010). Widespread transcription at neuronal activity-regulated enhancers. *Nature*, 465, 182–187. doi:10.1038/nature09033
- Kyriacou, C. P., & Hastings, M. H. (2010). Circadian clocks: Genes, sleep, and cognition. *Trends in Cognitive Sciences*, 14, 259–267. doi:10.1016/j.tics.2010.03.007
- Levenson, J. M., & Sweatt, J. D. (2005). Epigenetic mechanisms in memory formation. *Nature Reviews Neuroscience*, 6, 108–118. doi:10.1038/nrn1604
- Linden, D. J. (2007). *The accidental mind: How brain evolution has given us love, memory, dreams, and God*. Cambridge, MA: Belknap Press.
- Lister, R., & Ecker, J. R. (2009). Finding the fifth base: Genome wide sequencing of cytosine methylation. *Genome Research*, 19, 959–1966. doi:10.1101/gr.083451.108
- Mathews, H., & Janusek, L. (2008). Epigenetic patterns associated with psychosocial distress mediated immune dysregulation. *Brain, Behavior, and Immunity*, 22(4), S14. doi:10.1016/j.bbi.2008.04.049
- Mattick, J. (2010). RNA as the substrate for epigenome-environment interactions. *Bioessays*, 32, 548–552. doi:10.1002/bies.201000028
- McGeown, W. J., Mazzoni, G., Venneri, A., & Kirsch, I. (2009). Hypnotic induction decreases anterior default mode activity. *Consciousness and Cognition*, 18, 848–855. doi:10.1016/j.concog.2009.09.001
- McGowan, P. O., & Kato, T. (2008). Epigenetics in mood disorders. *Environmental Health and Preventative Medicine*, 13, 16–24. doi:10.1007/s12199-007-0002-0
- McGowan, P. O., Sasaki, A., D'Alessio, A. C., Dymov, S., Labonte, B., ... Meaney, M. J. (2009). Epigenetic regulation of the glucocorticoid receptor in human brain associates with childhood abuse. *Nature Neuroscience*, 12, 342–348. doi:10.1038/nn.2270
- McGowan, P. O., & Szyf, M. (2010). The epigenetics of social adversity in early life: Implications for mental health outcomes. *Neurobiology of Disease*, 39, 66–72. doi:10.1016/j.nbd.2009.12.026
- Meaney, M. J., & Szyf, M. (2005). Maternal care as a model for experience-dependent chromatin plasticity? *Trends in Neuroscience*, 28, 456–463. doi:10.1016/j.tins.2005.07.006
- Moore, D. (2001). *The dependent gene*. New York, NY: W.H. Freeman.
- Munzel, M., Globish, D., & Carell, T. (2011). 5-hydroxymethylcytosine, the sixth base of the genome. *Angewandte Chemie International Edition*, 50, 6460–6468. doi:10.1002/anie.201101547
- Muthusamy, V., Bosenberg, M., & Wajapeyee, N. (2010). Redefining regulation of DNA methylation by RNA interference. *Genomics*, 96, 191–198. doi:10.1016/j.ygeno.2010.07.001
- Nestler, E. J., & Hyman, S. E. (2002). Regulation of gene expression. In K. L. Davis, D. Charney, J. T. Coyle, & C. Nemerooff, *Neuropharmacology: The fifth generation of progress* (Chapter 17). Philadelphia, PA: Lippincott, Williams and Wilkins.
- Norman, A. W. (1985). The vitamin D endocrine system. *The Physiologist*, 28, 219–231.
- Parfrey, L. W., Lahr, D. J. G., & Katz, L. A. (2008). The dynamic nature of eukaryotic genomes. *Molecular Biology and Evolution*, 25(4), 787–794. doi:10.1093/molbev/msn032
- Pert, C. (1999). *The molecules of emotion: The science behind mind-body medicine*. New York, NY: Touchstone.
- Rapparini, R. (2010). Complex systems of consciousness. In U. Rana, K. Srinivas, N. Aery, & A. Purohit (Eds.), *The philosophy of evolution* (pp. 169–174). Jodhpur, India: Yash Publishing House.
- Reichardt, H. M., Umland, T., Bauer, A., Kretz, O., & Schütz, G. (2000). Mice with an increased glucocorticoid receptor gene dosage show enhanced resistance to stress and endotoxic shock. *Molecular and Cellular Biology*, 20, 9009–9017. doi:10.1128/MCB.20.23.9009-9017.2000
- Ren, B. (2010). Transcription: Enhancers make non-coding RNA. *Nature*, 465, 173–174. doi:10.1038/465173a
- Ribeiro, S., Simões, C., & Nicolelis, M. (2008). Genes, sleep and dreams. In D. Lloyd & E. Rossi (Eds.), *Ultradian rhythms from molecule to mind* (pp. 413–430). New York, NY: Springer. doi:10.1007/978-1-4020-8352-5\_17
- Ridley, M. (2001). *The co-operative gene: How Mendel's damon explains the evolution of complex beings*. New York, NY: The Free Press.
- Ridley, M. (2003). *Nature via nurture: Genes, experience, and what makes us human*. New York, NY: Fourth Estate.
- Ronald, J., Akey, J. M., Whittle, J., Smith, E. N., Yvert, G., & Kruglyak, L. (2005). Simultaneous genotyping, gene-expression measurement, and detection of allele-specific expression with oligonucleotide arrays. *Genome Research*, 15, 284–291. doi:10.1101/gr.2850605
- Rossi, E. L. (n.d.). *CPGHE protocol*. Retrieved from [www.ernestrossi.com/ernestrossi/Neuroscienceresearch-group.html](http://www.ernestrossi.com/ernestrossi/Neuroscienceresearch-group.html)
- Rossi, E. L. (1972). *Dreams consciousness spirit* (1<sup>st</sup> ed.). Phoenix, AZ: Zeig, Tucker, Theisen.
- Rossi, E. L. (1973). The dream protein hypothesis. *American Journal of Psychiatry*, 130, 1094–1097.
- Rossi, E. L. (1986). *Dreams consciousness spirit* (2<sup>nd</sup> ed.). Phoenix, AZ: Zeig, Tucker, Theisen.
- Rossi, E. L., & Cheek, D. B. (1988). *Mind-body therapy: Ideodynamic healing in hypnosis*. New York, NY: W.W. Norton.

- Rossi, E. L. (2002a). *The psychobiology of gene expression*. New York, NY: Norton.
- Rossi, E. L. (2002b). *Dreams consciousness spirit* (3<sup>rd</sup> ed.). Phoenix, AZ: Zeig, Tucker, Theisen.
- Rossi, E. L. (2005). Prospects for exploring the molecular-genomic foundations of therapeutic hypnosis with DNA microarrays. *American Journal of Clinical Hypnosis*, 48(2–3), 165–182. doi:10.1080/00029157.2005.10401514
- Rossi, E. L., & Rossi, K. (2006). The neuroscience of observing consciousness & mirror neurons in therapeutic hypnosis. *American Journal of Clinical Hypnosis*. 48, 283–278. doi: 10.1080/00029157.2006.10401533
- Rossi, E. L., Ianotti, S., Cozzolino, M., Castiglione, S., Cicatelli, A., & Rossi, K. (2008). A pilot study of positive expectations and focused attention via a new protocol for optimizing therapeutic hypnosis and psychotherapy assessed with DNA microarrays: The creative psychosocial genomic healing experience. *Sleep and Hypnosis*, 10(2), 39–44.
- Schulkin, J., Gold, P. W., & McEwen, B.S. (1998). Induction of corticotrophin-releasing hormone gene expression by glucocorticoids: Implication for understanding the states of fear and anxiety and allostatic load. *Psychoneuroendocrinology*, 23, 219–243. doi:10.1016/S0306-4530(97)00099-1
- Shalon, D., Smith, S. J., & Brown, P. O. (1996). A DNA microarray system for analyzing complex DNA samples using two-color fluorescent probe hybridization. *Genome Research*, 6, 639–645. doi:10.1101/gr.6.7.639
- Shamron, N. (2010). MicroRNAs and development robustness: A new layer is revealed. *PLoS Biology*, 8(6), e1000397. doi:10.1371/journal.pbiol.1000397
- Siegel, D. J. (2006). An interpersonal neurobiology approach to psychotherapy. *Psychiatric Annals*, 36, 248–256.
- Siegel, D. J. (2012). *The developing mind: How relationships and the brain interact to shape who we are* (2nd ed.). New York, NY: Guilford Press.
- Stewart, R., & Hirani, V. (2010). Relationship between vitamin D levels and depressive symptoms in older residents from a national survey population. *Psychosomatic Medicine*, 72, 608–612. doi:10.1097/PSY.0b013e3181e9bf15
- Tuskan, G. A., DiFarzio, S., Jansson, S., Bohlmann, J., Grigoriev, I., ... Rokhsar, D. (2006). The genome of black cottonwood, *populus trichocarpa*. *Science*, 313(5793), 1596–1604. doi:10.1126/science.1128691
- Watson, J. D., & Crick, F. H. (1953). Genetic implications of the structure of deoxyribonucleic acid. *Nature*, 171, 964–967. doi:10.1038/171964b0
- Yarus, M. (2010). *Life from an RNA world: The ancestor within*. Cambridge, MA: Cambridge University Press.
- Yehuda, R., Cai, G., Golier, J. A., Sarapas, C., Galea, S., ... Buxbaum, J. D. (2009). Gene expression patterns associated with posttraumatic stress disorder following exposure to the world trade center attacks. *Biological Psychiatry*, 66, 708–711.
- Yeung, K. Y., Medvedovic, M., & Bumgarner, R. E. (2003). Clustering gene-expression data with repeated measurements. *Genome Biology*, 4, R34. doi:10.1186/gb-2003-4-5-r34

# What Does Energy Have to Do With Energy Psychology?

David Feinstein

Ashland, Oregon

## Abstract

An obstacle to professional acceptance of the growing body of research supporting the efficacy of energy psychology is the vague use of the term *energy* in the field's name and explanatory frameworks. This article explores whether the concept of "energy" is necessary to fully account for the observed clinical outcomes that follow "energy psychology" treatments. Evidence is presented that shifting 3 types of energy—electromagnetic signals, brain waves, and energy fields—gives energy psychology protocols their advantage in quickly changing longstanding patterns in the brain. *Electromagnetic signals* that reduce threat arousal in the amygdala follow the stimulation of selected acupuncture points (acupoints). Acupoint stimulation also produces delta *waves* that are believed to depotentiate neural pathways that maintain maladaptive fear. Meanwhile, *energy fields* that organize neural activity provide a possible solution to a quandary in neuroscience. Conventional neurological models cannot explain how the diverse brain activities

that are involved in information processing are coordinated. Just as electromagnetic fields have been shown to organize cellular activity in wound healing, energy fields are believed to organize neurological processes. The rapid resolution of intrusive, unprocessed memories seen in energy psychology treatments is attributed, in part, to the way acupoint stimulation is able to directly impact these "organizing fields." A working model that attempts to explain energy psychology treatment outcomes contains 3 premises about electromagnetic and more "subtle" energies in psychotherapy: (a) energy is an omnipresent dimension of body and mind that can be influenced to impact each in desired ways, (b) energy carries information, and (c) clinical interventions can draw upon the ways energy fields, through resonance, influence other energy fields as well as neural activity.

**Keywords:** acupoints, reconsolidation, energy, fields, resonance.

**David Feinstein**, PhD, is a clinical psychologist who has received nine national awards for his books on consciousness and energy healing. **Correspondence:** 777 East Main Street, Ashland, OR 97520. E-mail: df777@earthlink.net. **Acknowledgments:** I gratefully acknowledge comments on drafts of this article by Maarten Aalberse, doctorandus, John Freedom, Dag Hultcrantz, Douglas J. Moore, PhD, Robert Schwarz, PhD, and Anthony J. Tranguch, MD, PhD. **Disclosures:** The author derives income from trainings, clinical services, and books and articles related to the approach examined in this article.

## Introduction

Energy psychology is a psychotherapeutic and self-help approach that combines established clinical methods (such as imaginal exposure and mindfulness) with somatic interventions (such as the stimulation of acupuncture points by tapping on them) for effecting therapeutic change. By using the term *energy* in its name and explanatory

models, energy psychology has opened itself to criticisms, conceptual confusion, and skepticism about mobilizing vague forms of energy for healing—skepticism that reaches back at least to the fierce controversies surrounding vitalism (Williams, 2003), ether as a physical medium (Duffy & Levy, 2009), orgone therapy (Reich, 1973), and Franz Anton Mesmer's (1734–1815) "animal magnetism." There is little question that the efficacy claims of energy psychology practitioners—which have been roundly criticized and sometimes ridiculed (e.g., Devilly, 2005; Herbert & Gaudiano, 2001; Lohr, 2001; McCaslin, 2009; McNally, 2001; Pignotti & Thyer, 2009)—would receive a more receptive hearing if the explanatory models were couched exclusively in conventional clinical language. More accepted terminology might include cognitive restructuring, exposure

treatment, desensitization, counter-conditioning, information processing, sensorimotor interventions, neural reorganization, or even the modulation of gene expression (Feinstein & Church, 2010), all of which are probably involved.

A survey of 51 peer-reviewed journal articles describing outcomes of energy psychology treatments found that all 51 reported positive changes in symptoms or behavior (Feinstein, 2012). The articles investigated outcomes following Thought Field Therapy (TFT) or Emotional Freedom Techniques (EFT) treatments, the two most extensively practiced and researched energy psychology formats. Each utilizes the stimulation of selected acupuncture points (acupoints) by tapping on them. A critical analysis of the 18 randomized controlled trials (RCTs) in this sample showed that their findings “consistently demonstrated strong effect sizes and other positive statistical results that far exceed chance after relatively few treatment sessions” (p. 14). In three of the investigations—with survivors of genocide or abuse—posttraumatic stress disorder (PTSD) scores dropped from well above to well below clinical PTSD cutoffs on self-inventories or caregiver inventories for a majority of participants after a *single* treatment session (Church, Piña, Reategui, & Brooks, 2011; Connolly & Sakai, 2011; Sakai, Connolly, & Oas, 2010). Sustained improvement was found at 1 year (Sakai et al., 2010) and 2 years (Connolly & Sakai, 2011). These single-session PTSD studies corroborated earlier field reports of successful single-session PTSD treatments with more than 300 disaster survivors (described in Feinstein, 2012). The 51 articles reviewed presented statistically significant evidence regarding nine conditions that responded favorably to energy psychology treatments. In addition to PTSD, these included phobias, specific anxieties, generalized anxiety, depression, weight control, physical pain, physical illness, and athletic performance.

With accumulating evidence supporting the efficacy of energy psychology, the question “if it works, how does it work?” becomes more prominent. Numerous explanations that attempt to account for the neurological mechanisms involved have been proposed (e.g., Alberse, 2012; Feinstein, 2010, 2012; Feinstein & Church, 2010; Lane, 2009; Ruden, 2005, 2010). This article examines whether the concept of “energy” increases the explanatory power of existing models.

## Existing Explanatory Models and Their Limitations

Explanations by early proponents of the approach (e.g., Callahan & Callahan, 1996) focused on hypothesized “thought fields” and principles of acupuncture that traced to traditional Chinese medicine. Laboratory findings in areas germane to energy psychology have since made it possible for explanatory models to be better informed by empirical evidence. For instance, a number of studies have identified physiological changes that correlate with the observed clinical improvements. Acupoint stimulation has been shown in published or pilot studies to reduce levels of the stress hormone cortisol, activate stress-reducing genes, normalize aberrant brain wave patterns, and increase production of serotonin, opioids, and other neurotransmitters associated with pleasure (summarized in Church & Feinstein, in press).

Physiological correlates of subjective and behavioral improvements are not, however, mechanisms of action. Studies using electroencephalogram (EEG), functional magnetic resonance imaging (fMRI), and positron emission tomography (PET) scans have revealed two *mechanisms* that are presumably involved in the established psychological effects of acupoint stimulation.

An ongoing research program at Harvard Medical School using fMRI and PET scans has conclusively shown that stimulating selected acupoints produces extensive deactivation in the amygdala and other areas of the limbic system (Dhond, Kettner, & Napadow, 2007; Fang et al., 2009; Hui et al., 2000, 2005). Energy psychology protocols combine acupoint tapping with the activation of unwanted emotions through imaginal exposure, usually by bringing to mind a problematic memory or trigger. This simultaneously *increases* arousal (through the imaginal exposure) while at the same time *decreasing* arousal (through electromagnetic signals sent to the limbic system via acupoint tapping). In reconciling these opposing signals, the brain is ultimately able to engage the memory or trigger without limbic arousal. While the Harvard researchers used traditional acupuncture needling as their primary means of stimulating the acupoints they examined, various other investigators have found a normalization of brain wave patterns following acupoint tapping for anxiety-related or neurological disorders (Diepold

& Goldstein, 2009; Lambrou, Pratt, & Chevalier, 2003; Swingle, 2010; Swingle, Pulos, & Swingle, 2004). A double-blind study comparing penetration by acupuncture needling with nonpenetrating pressure also found equivalent clinical improvements for the two interventions (Takakura & Yajima, 2009). Whether using needles, tapping, or other means, the process starts with acupoint stimulation generating piezoelectricity (electricity produced by mechanical pressure), the same principle that causes the spark that lights a cigarette lighter or a propane barbecue. Electrical currents are then sent to cells, organs, and other biological systems via the body's connective tissue (Oschman, 2003).

So a relatively well-established mechanism of action in energy psychology protocols is that electrical signals produced by tapping on selected acupoints during imaginal exposure reduce limbic arousal. A second process, this one involving brain waves, has also been identified. Repetitive sensory stimulation, in this case tapping on acupoints, generates large increases in the amplitude of delta waves in areas of the brain involved in fear memories, as detected by EEG readings. After several minutes of stimulation, these amplified delta waves have been shown to disrupt activated memory networks, reminiscent of the "natural memory editing system" found in delta wave of sleep (Harper, 2012, p. 61). Specifically, glutamate receptors on synapses that mediate a fear memory are believed to be "depotentiated by these powerful waves of neuronal firing" (p. 61). When the neural circuits in the amygdala that maintain the threat response are deactivated in this manner (during virtually *any* exposure therapy protocol that employs repetitive psychosensory stimulation on upper parts of the body, according to Harper's findings), "the material basis of the fear memory has been removed" (p. 64). Ruden (2010) has incorporated this and related neurological findings into a sophisticated protocol for trauma treatment.

Sending *deactivating signals* to the amygdala and generating *delta waves* that disrupt activated memory networks are two ways acupoint tapping appears to evoke *energies* that impact brain activity in therapeutic ways. These mechanisms suggest a logical neurological sequence in the treatment of serious disorders such as PTSD. The sequence progresses from (a) PTSD involving, at its psychophysiological core, a proclivity for amygdala hyperarousal, to (b) the stimulation

of acupoints generating (c) deactivating signals and depotentiating brain waves while the threat response has been triggered by imaginal exposure, (d) turning off the threat response and possibly eradicating neural pathways, in a manner that (e) permanently changes the conditioned response to the trigger or memory. This formulation offers a plausible rationale for the distinctive ways acupoint stimulation serves as an active ingredient in energy psychology protocols beyond the other elements that are found in most therapies (therapeutic alliance, empathic communication, etc.).

While this account is consistent with established neurological principles, it has some gaps and limitations. First, controversy exists about whether "sham points" may be as clinically effective as the points used in traditional acupuncture, with some evidence suggesting that the traditional points are more effective (Lang et al., 2007) and other studies suggesting that sham points may be equally effective (Haake et al., 2007).

Second, although the model is consistent with existing physiological and clinical data, it has not been scientifically tested. Imaging equipment is available that could confirm or disconfirm each stage of the hypothesized sequence described earlier, but these studies are yet to be conducted. And even if imaging studies were to confirm that the neurological processes involved in treating PTSD have been accurately anticipated, the range of disorders that appear to respond to essentially the same acupoint tapping protocols (Feinstein, 2012) requires explanation.

Third, the surprising speed and power observed during energy psychology treatments themselves pose a challenge to existing paradigms (Feinstein, 2009). Anyone who knows someone struggling with longstanding PTSD or who is familiar with the professional literature on treating the disorder will do a double-take on hearing of the studies referred to earlier in which a vast majority of subjects who had scored above PTSD cut-offs on standardized measures were substantially below those cut-offs after a single session. In fact, in an informal survey of 265 energy psychology practitioners, less than 1% said they believed that the primary active ingredient in energy psychology treatments can be explained exclusively in conventional terms (reported in Feinstein, 2004). Might the "energy" dimension of energy psychology play a more systemic role in these surprising outcomes than the relatively confined effects of

generating electromagnetic deactivating signals and memory-disrupting delta waves?

## Does “Energy” Have a Legitimate Role in Explanatory Models?

While scientific frameworks in conventional Western thought are still dominated by a rigid materialism and mechanistic worldview, leading-edge scientists, studying topics from neurology to quantum mechanics, are finding them inadequate for addressing some of the most pressing questions in their respective fields (Laszlo & Dennis, 2012). Nowhere is this more evident than in medicine. Bruce Lipton, a cell biologist who did some of the pioneering work on stem cells and on gene expression while on the medical school faculties at Stanford and at the University of Wisconsin, has suggested that medicine is a century behind modern physics in utilizing the realization that the universe is most fundamentally made—not of seemingly separate billiard ball-like atoms and molecules suspended in empty space—but of energy:

Quantum physicists discovered that physical atoms are made up of vortices of energy that are constantly spinning and vibrating ... The fact that energy and matter are one and the same is precisely what Einstein recognized when he concluded:  $E = mc^2$ . ... The Universe is *one indivisible, dynamic whole* in which energy and matter are so deeply entangled it is impossible to consider them as independent elements. (Lipton, 2005, pp. 100–102)

Conventional medicine focuses first on the chemical side of illness and healing, largely from a Newtonian “poolball” perspective; energy medicine and energy psychology focus first on the energy side.

### *Strengths of an Energy-Attuned Model*

Lipton (2005) pointed out that a linear, mechanistic understanding of the complex information exchanges involved in the body’s normal functioning cannot “even come close to giving us an accurate understanding of disease” (p. 103) while “hundreds upon hundreds of ... scientific studies over the last fifty years have consistently revealed that ‘invisible forces’ of the electromagnetic

spectrum profoundly impact every facet of biological regulation” (p. 111).

Two clinically vital qualities that distinguish energy from chemistry are speed and responsiveness. With 50 to 100 trillion cells comprising the human body, survival depends upon the speed and efficiency of signal transfer. The act of walking requires communication among millions of cells. While chemical signals proceed at less than 0.5 in./s and much of the signal’s energy is lost in the heat generated by thermochemical coupling (Lipton, 2005), electromagnetic signals travel through nerve fibers at up to 500 feet/s, and energy fields can “broadcast” information to other energy fields at the speed of light’s 186,000 miles/s. Lipton (2005) described research suggesting that “energetic signaling mechanisms such as electromagnetic frequencies are a hundred times more efficient in relaying environmental information than physical signals such as hormones, neurotransmitters, etc.” (p. 112). Biologists have also repeatedly demonstrated the extraordinary sensitivity and responsiveness organisms have to tiny signals in the environment (Oschman, 2000, 2005), including an ability to detect extremely weak electromagnetic fields and discriminate them from background “noise” involving much stronger signals (Adey & Bawin, 1977). Recognizing this sensitivity to gradients of electromagnetic information fills a gap in our understanding of the complex information processing accomplished by the human brain.

Six strengths of utilizing an energy medicine framework have been identified as involving its abilities to (a) address biological activities at their energetic foundations; (b) regulate physiological processes with precision, speed, and flexibility; (c) foster healing and prevent illness with interventions that can be readily, economically, and noninvasively applied; (d) include methods that can be utilized on an at-home, self-help basis, fostering a stronger patient and practitioner partnership in the healing process; (e) adopt nonlinear concepts consistent with distant healing, the healing impact of prayer, and the role of intention in healing; and (f) strengthen the integration of body, mind, and spirit, leading not only to a focus on healing but to achieving greater well-being, peace, and passion for life (Feinstein & Eden, 2008). These strengths have led nationally prominent physicians such as Christiane Northrup (2008), Norm Shealy (1998), and Mehmet Oz

(2007) to publicly predict that energy medicine will play a central role in the future of medicine. According to Dr. Oz (2007), “Energy medicine is the last great frontier in medicine!”

### *Energy Psychology’s Three Primary Energy Systems*

Energy psychology is a branch of energy medicine in a manner somewhat analogous to the way psychiatry is a branch of conventional medicine. Psychiatry applies medical principles and procedures for enhancing mental health; energy psychology applies energy medicine principles and procedures toward the same objective. Complementing the familiar energies that fall within the electromagnetic spectrum, energy healing practitioners believe they are also working with energies that involve a “subtle” dimension that is not easily detected or measured (Collinge, 1998). The Association for Comprehensive Energy Psychology ([www.energypsych.org](http://www.energypsych.org)) identifies three subtle energy systems that may be addressed by energy psychology interventions: (a) energy pathways, such as “meridians”; (b) energy centers, such as “chakras”; and (c) the energy field surrounding the body, known scientifically as the “biofield,” or in healing and spiritual traditions as the “aura.”

All three forms of subtle energy—meridians, chakras, and biofields—have been independently discovered and worked with by healers throughout the world over the millennia. At least 97 cultures refer to the human aura, each calling it by their own name (White & Krippner, 1977). The chakras, according to Collinge (1998), are

major centers of both electromagnetic and vital energy [which] are recognized in indigenous cultures the world over. In the Huna tradition of Hawaii, they are called auw centers; and in the Cabala, they are the “tree of life” centers. In the Taoist Chinese traditions the term is dantien, and in yogic theory they are called “chakras.” (p. 35).

“Vital energy” is also believed to flow throughout the body along an unseen network of pathways, which are called “meridians” in traditional Chinese medicine and “nadis” in the yogic tradition of ancient India. Each of these energy systems—the aura, chakras, and meridians—is thought of as involving electromagnetic as well as subtle energies.

### *Empirical Support for the Existence of Subtle Energies*

Not only are the existence of the aura, chakras, and meridians corroborated across cultures, but each has been distinguished by electromagnetic measures and other physical verifications. Hundreds of experiments using dozens of unconventional instruments, in fact, have pointed to the existence of energies that are not described within conventional frameworks (Church, 2009; Collinge, 1998; Dale, 2009; Gerber, 2001; Oldfield & Coghill, 2011; Swanson, 2003, 2010; Tiller, 1997). For instance, a vivid demonstration of subtle energy in a lab setting, originally conducted in Russia, has been followed by collaborative experiments between the Institute of Heartmath in California and the Institute of Biochemical Physics of the Russian Academy of Sciences (Poponin, 2002). A laser beam sent through a vacuum showed distinct patterns in the vacuum’s energy field after a sealed container holding DNA was placed in the vacuum. After the DNA was removed, with strict vacuum conditions maintained, the laser beam was again passed through the vacuum. This time, patterns of light oscillation that were not in the vacuum prior to the insertion of the DNA were found after the DNA was removed. These remaining oscillations have been interpreted as being the subtle energy imprint of the DNA. Had they been electromagnetic imprints, which propagate at the speed of light, any such traces would have quickly left the chamber or been absorbed. But, as Swanson (2010) commented, these traces had “an independent, stable existence” (p. 128).

Holding that such energies are more than mere artifacts of nature, Swanson (2010) proposed that “subtle energy modifies the familiar forces of electromagnetism, gravity, and the nuclear forces [and] appears to be the source of auras and chakras and the qi [life force] which flows through the acupuncture system of the body” (pp. 48–49). Perhaps the most provocative quality of subtle energy for psychotherapists, however, is that “it responds to and interacts with thought” (Swanson, 2010, p. 50). The influence of intention on plant growth (McTaggart, 2007; Tompkins & Bird, 1973) and healing (Schmidt, 2012), as well as on mechanical instruments (Nelson, Bradish, Dobyns, Dunne, & Jahn, 1996; Tiller, 1997), has substantial empirical support, and some form of subtle energy appears to be mediating (Dale, 2009).

## A Working Model for Energy Psychology

That memories, beliefs, feelings, thoughts, and habits of behavior are coded in the brain is well established. Also unquestioned is the fact that energy can carry information, as in the light waves that are bringing these words to your eyes, sound waves, radio waves, and other electromagnetic frequencies such as x-rays. Not so familiar is the way these electromagnetic energies may interact in coordinating psychological processes, with energy fields organizing the brain's neurons in coding information.

The original explanatory model within energy psychology was Roger Callahan's formulation of the "thought field." Callahan viewed a thought field as a "force field" in the body that "carries thoughts and information" (Callahan & Callahan, 2011, p. xxi). Callahan's Thought Field Therapy instructs the client in ways of tuning into the thought field associated with a psychological problem. Tapping on specific acupuncture points after this thought field has been mentally activated is believed to resolve energy disturbances that were involved with that problem. The desired result of this sequence is that the thought field that was sustaining the problematic emotional responses, behaviors, and ways of thinking will be altered.

### How the Brain Processes Disturbing Experiences

Before addressing how energy fields might be able to therapeutically impact emotions, thought, and behavior, we will first review current understanding of the ways the brain manages distressful experiences. Ecker, Ticic, and Hulley (2012) summarized recent findings about how the brain stores and revises emotional learning. Core beliefs and mental models formed in the presence of intense emotion during childhood or later "are locked into the brain by extraordinarily durable synapses" (p. 3) that normally persist for the remainder of the person's life. Neuroscience research since 2004 has, however, demonstrated that—by facilitating a specific sequence of experiences—it is possible to activate targeted emotional learnings and chemically unlock their synapses "for prompt dissolution of those retrieved learnings at their emotional and neural roots" (p. 8). Through this process of

"depotentiating" (deactivating at the synaptic level) the neural pathways maintaining emotional learnings that are at the basis of psychological problems, "major, longstanding symptoms can cease [because] their very basis no longer exists" (p. 4). When synapses are temporarily unlocked during the precise set of conditions described below, neural pathways that sustain old emotional learnings may be altered or totally eradicated.

The key involves the way the brain first *consolidates* emotionally charged experiences (translating them into memory) and may then, after such experiences have been recalled, *reconsolidate* them (reintegrate retrieved memories into the memory system in a way that maintains or modifies the memory). Experiences become consolidated into working memory within seconds, and then into short-term memory within minutes to hours, through the synthesis of proteins that form synaptic pathways between neurons ("synaptic consolidation"), a hippocampus-mediated process. Over time they are further consolidated with other memories ("systems consolidation"), a process that involves the neocortex (Roediger, Dudai, & Fitzpatrick, 2007). Memories are formed by separate memory systems into two basic layers, implicit and explicit memories. Implicit memories do not involve conscious recall of an event. They are, rather, encoded as behavioral learnings, emotional reactions, perceptions of the outer world, and bodily sensations, as well as "generalizations across experiences, summarizing elements of lived moments into schema or mental models of events" (Siegel, 2010, p. 63). While implicit memories do not bring the earlier experience into conscious memory, they can impact current experiences without the person's recognition of their influence. This can be useful. The implicit memory system, in fact, plays a central role in daily functioning, from navigating one's way through repetitive choice points without having to seek a new solution each time, to routine procedures such as tying one's shoes or driving a car. We don't think about the steps or where we learned them. We simply do them, with our minds free to focus on other concerns.

Explicit memory involves the more familiar conscious recall of facts and events. First encoded by the hippocampus, memories of one's experiences subsequently become integrated as autobiographical memory at the neocortical level. Compared with the emotional or procedural

learnings in the implicit memory network, which are stored in the subcortical limbic system and right cortical hemisphere, explicit memory

is more flexible and gives us the factual scaffold of our understanding of the world as well as weaving a set of autobiographical puzzle piece assemblies. In other words, implicit memory provides the pieces; explicit memory assembles them into fuller pictures of the whole. (Siegel, 2010, p. 64).

But when a memory is based on trauma or other difficult experiences, this integration of the implicit and explicit memory systems may not occur. Ecker et al. (2012) have explained that implicit memories of highly charged emotional events may, in fact, “underlie and generate” a large proportion of the symptoms people present in psychotherapy (p. 14), including symptoms that are often attributed to genetic and other factors, such as many forms of depression. They propose that the implicit memory system generates coherent mental models that “make deep sense in light of actual life experiences and are fully adaptive in how they embody the individual’s efforts to avoid harm and ensure well-being” (p. 7). Symptoms, they feel, are best understood as emerging from mental models that reflect “adaptive, coherent strivings” (p. 7) from an earlier time rather than in the pathologizing terms found in much of the clinical literature. However, when these models are imposed on new circumstances, they are often limiting or harmful and may become the source of a range of psychological difficulties.

### *The Cost of Unprocessed Memories*

Implicit body-level memories and learnings can influence perceptions, thoughts, and behavior in ways that produce psychological symptoms or are otherwise costly to the person’s ability to thrive, and they tend to persist. If, however, the experience that evoked the implicit memory is paired with an experience that is in conflict with the person’s predominant mental models, the conflict may enter consciousness in ruminations, mental enactments of what might have been done or said differently, or in dream content. Sleeping and dreaming are among the ways the brain attempts to reconcile implicit memories with experiences that challenge them (Walker & van der Helm, 2009). Conscious and unconscious mental

activities converge to make sense of unsettling experiences, to put them into perspective by comparing them with related experiences from the past, and to glean learnings that can be applied when similar situations are encountered.

Some experiences, however, overwhelm a person’s ability to integrate them with existing neural networks, and they are consolidated in the implicit memory system without subsequent integration by the neocortex. Traumatic experiences may actually be stored in fragments—as sensations, perceptions, emotions, thoughts, and impulses to react, such as to flee the situation—that can re-emerge and impact current perceptions and behavior with no conscious recognition of their origin. PTSD, stemming from intense trauma, has received the greatest attention, but many typical childhood or subsequent experiences—such as severe humiliation, betrayal, embarrassment, criticism, or a major loss or threat—can also create implicit memories and learnings that reactivate in the present and dominate information processing. Rather than being stored in the fragmentary manner seen in PTSD, these experiences tend to be coded in the implicit memory system as isolated but coherent internal schema for avoiding harm or adapting to difficult situations. Because they were formed to cope with circumstances that are usually no longer current, they may be at the root of automated, self-limiting thoughts, perceptions, and behavior. Such unprocessed implicit emotional learnings become intertwined and confused with the current experience, causing responses that are invisibly linked to the past while preventing desired outcomes in the present.

Most people, even those who are coping relatively well, carry numerous implicit memories that are echoed in their current behavior in ways that are self-limiting. If a male teacher who had bushy eyebrows was sexually provocative toward you, you may find yourself reflexively shying away from bushy-eyebrowed men. Sensory aspects of the original experience—smells, sounds, tastes, skin sensations, or images such as bushy eyebrows—can become triggers that evoke an old emotion or bodily response and result in your projecting it onto the current situation. Another person’s tone of voice, gesture, or facial expression may cause you to overlay your emotions and responses from an early experience onto what is happening now. Resolving unprocessed memories

through reconsolidation is a path out of these difficult and often self-defeating scenarios.

### *How the Brain Updates Emotional Learnings*

Despite the stubborn tenacity of these deep emotional learnings, nature has established a mechanism for “updating existing learnings with new ones” (Ecker et al., 2012, p. 26). After an emotional memory has been brought to mind—in response to cues, triggers, context, or suggestion—the memory can, for a brief period, be reconsolidated in a new way. If, during this “reconsolidation window,” which can last for several hours, a second vivid experience is introduced that differs significantly “from what the reactivated target memory expects and predicts about how the world functions” (p. 21), the original learning can be revised or completely eliminated. The old learning is replaced by a new experience that first challenged and then “disconfirmed” the outdated beliefs, models, and interpretations. This new, incompatible experience produces a neural mismatch that chemically “unlocks” the synapses of the earlier memory and “renders [its] circuits labile,” that is, susceptible to change by “a new learning experience that contradicts (for erasing) or supplements (for revising) the labile target knowledge” (p. 27). For the synapses to “unlock,” the disconfirming experience must be evoked while the original learning is still in a reactivated condition. For the memory to be reconsolidated in a new way, the same disconfirming experience must be repeated, or another experience that contradicts the mental model that grew from the original memory must be introduced, during the reconsolidation period.

Demonstrated first in animal studies and then in humans, this process can rapidly and permanently change “learnings formed in the presence of intense emotion” that, until recently, had appeared to psychotherapists as well as brain researchers to be so indelible that it seemed, after they had been established, that “the brain threw away the key” (Ecker et al., 2012, p. 3). We now know a great deal about the brain’s keys for unlocking the synapses that maintain emotional memory. Ecker et al. (2012) summarized the clinical implications of these developments: “With clear knowledge of the brain’s own rules for deleting emotional learnings through memory reconsolidation, therapists no longer have to rely

largely on speculative theory, intuition, and luck for facilitating powerful, liberating shifts” (p. 4). Understanding the memory reconsolidation process has made it possible for clinicians to more systematically transform the core beliefs and mental models formed in response to earlier life experiences.

### *Therapeutically Resolving Unprocessed Memories*

A century of psychotherapy has been dedicated to freeing people from old, dysfunctional patterns that are rooted in the past, allowing them to reach potentials that would otherwise remain beyond their grasp. Ways of overcoming limitations that trace to childhood were pioneered by psychodynamic therapists and have been refined by cognitive-behavioral therapists. Newer “power therapies” introduce additional therapeutic elements that are believed to enhance the speed and efficiency by which old habits and conditioned reflexes can be interrupted and new ones established (Commons, 2000). These “power therapies”—claimed by their proponents to be unusually effective in interrupting old habits of thought, feelings, and behavior and in establishing new ones—share in their use of somatic interventions. Along with energy psychology, prominent therapies utilizing somatic interventions include Eye Movement Desensitization and Reprocessing (Shapiro, 2001), Gestalt Therapy (Polster & Polster, 1973), Hakomi (Kurtz, 2007), Sensorimotor Psychotherapy (Ogden, Kekuni, & Pain, 2006), and Somatic Experiencing (Levine, 2010).

In introducing the earliest energy psychology protocols, Callahan (1985) formulated a set of procedures that were remarkably attuned to the findings about memory reconsolidation that would emerge two decades later. The sequence of experiences necessary for systematically evoking the reconsolidation process to transform a target emotional learning, regardless of the form of therapy, has been described by Ecker et al. (2012): (a) vividly accessing emotional memories or learnings that are involved in the targeted symptom, (b) concurrently activating an experience that contradicts implicit models or conclusions that were drawn from the original experiences—which Ecker et al. termed a “juxtaposition experience,” and (c) verifying that the change has occurred. During these steps, implicit memories and learnings enter the

neocortex-mediated explicit memory system and integrate with neural pathways that support established coping strategies, their earlier adaptive functions are examined and appreciated, and their automated, unrecognized influence on current perceptions, thoughts, and behaviors are eliminated. This is how unprocessed implicit emotional memories and learnings are “processed.”

In a typical energy psychology protocol, the initial rounds of acupoint tapping most often involve activating the symptom or presenting problem and the emotional learnings underlying it via imaginal exposure. The client calls up the issue using images, evocative phrases, or a felt sense of the problem. When the tapping has removed some of the emotional edge of the current problem, childhood memories that play into the current problem often spontaneously emerge, and as they become the new focus, their adaptive historical function can usually be discerned. Techniques for bridging to earlier memories, such as following a current feeling back to one of the first times that feeling was experienced, may also be used.

The second set of sequences—generating an experience that disconfirms the earlier learnings—is the most complex stage for most reconsolidation-oriented therapies, but it is where energy psychology protocols show their greatest advantage. Because stimulating selected acupoints almost instantly reduces limbic arousal (see Fang et al., 2009; Hui et al., 2005), the emotional landscape changes *during* the exposure. A traumatic memory or trigger that produced a physiological threat response is vividly imagined, but the disturbing physiological response is no longer present. The brain is experiencing a mismatch. The memory or trigger created a strong expectation that the implicit emotional learnings would be evoked, but the expected emotional reaction did not occur because acupoint stimulation had temporarily deactivated the limbic system. The juxtaposition of holding the troubling scene simultaneous with no physiological arousal is the mismatch that is the necessary ingredient for the scene that was mentally activated to be reconsolidated in a new way.

In this juxtaposition stage, energy psychology protocols closely mimic the early laboratory experiments with animals in which the role of reconsolidation was discovered. For instance, a red light in the cage of an experimental animal would glow just before a foul odor was administered. Once the

implicit learning that the red light meant the odor was coming had been established, the red light alone would cause the animal to try to avoid the odor. But if the expected odor is not released following the appearance of the light, a mismatch between expectations and perceptions is created: “The synapses of the schema’s neural circuit [are] molecularly unlocked, like an unlatching of train cars still sitting in place [so] the schema can be modified or erased permanently” (Ecker, 2010, p. 45). These conditions can be easily created in the laboratory, but they are more challenging to create in a clinical setting. The mismatch in energy psychology treatments, however, is generated by simply tapping on the skin, almost too easy to believe. The required mismatch or “disconfirming experience” is effected by bringing the trigger to mind while preventing the threat response from occurring via the deactivating signals the acupoint stimulation sends to the amygdala. Other therapies often have to work much harder to create suitable mismatch experiences.

For Ecker et al.’s (2012) third stage (verifying that the change has occurred), energy psychology practitioners use SUD (subjective units of distress) ratings to provide both the clinician and the client not only a way of readily verifying that the desired outcomes have occurred but also a gauge that can be frequently called upon to determine which elements of the treatment need adjustment or repetition. A single experience that contradicts an old learning can unlock the synapses, launching reconsolidation, but it usually must be repeated several times for unlearning to occur. The process of assigning the rating is essentially a mindfulness task that often also uncovers salient aspects of the situation that then receive attention.

The observations of Ecker et al. (2012) regarding therapeutic change, based on an understanding of the reconsolidation of emotional learnings, are consistent with the clinical and research findings emerging from within energy psychology. One of the most controversial but most significant of these is that “transformational change through the erasure sequence does not rely on extensive repetition over time to effect change” (p. 32). The rapid outcomes seen in energy psychology treatments are consistent with Ecker et al.’s observations about “the swiftness with which deep, decisive, lasting change occurs through the therapeutic reconsolidation process” (p. 32). This of course “challenges traditional notions of the time

required for major therapeutic effects to come about” (p. 32), as reports of the single-session energy psychology treatments of PTSD discussed earlier have tended to do. Another pertinent observation is that the “mismatch” component—the visceral experience that contradicts the client’s existing emotional knowledge and becomes the basis for the new learning—“must feel decisively *real* to the person based on his or her own living experience … it must be experiential learning as distinct from conceptual, intellectual learning, though it may be accompanied by the latter” (p. 27). One of the most satisfying and frequently repeated experiences for energy psychology practitioners is watching the astonished expression on a person’s face when bringing to mind a memory or trigger or entering an *in vivo* situation that 15 min earlier was met with the physiological components of terror but is now unable to produce any emotional charge whatsoever.

Variables that impact treatment speed and outcome include the age of the problematic emotional learning, its intensity, the context in which it was formulated, and the frequency of the experiences that led to and reinforced the emotional conclusions (Ecker et al., 2012). In discussing the durability of new learnings that are based on reconsolidation, Ecker et al. noted that new learning of any kind of course “creates brain change in the form of new neural connections,” but “it is *only* when new learning also unwires old learning that *transformational* change occurs” (p. 33). In therapies that take advantage of the natural reconsolidation process, the “new learning directly impinges upon and revises the circuits of the old learning, rewiring and updating them” (p. 33). Eliminating the old learning through reconsolidation is necessary for clinical outcomes where “symptom cessation is rapid and complete, not subject to relapse, [and] remaining symptom-free is effortless” (p. 33). Such changes are of a different order than “extinction training,” where learned responses are challenged and temporarily overridden by—but are *not* fundamentally changed or erased by—new conditioning. In reconsolidation, the original memory pathways are *themselves* changed. In extinction training, the new learnings are formed “in a physically separate memory system” that competes with “the target learning” (p. 16). As a result, extinction training has less power and the symptoms it does extinguish are subject to return.

Of particular interest with reconsolidation-informed therapies is the way that when an old emotional learning “is erased, erasure is limited to precisely the reactivated target learning, without impairing other closely linked emotional learnings that have not been directly reactivated” (p. 25). Consistent with reports from energy psychology practitioners, after the learned fear response has been eliminated, “subjects still remembered the experiences in which they had acquired the conditioned fear response, as well as the fact of having had the fear, but the fear was not re-evoked by remembering those experiences” (p. 25). In fact, energy psychology training programs teach practitioners to challenge positive outcomes (Adams & Davidson, 2011), asking the client to try to reproduce the fear, pain, anger, or other disturbing emotion associated with the target memory or trigger. If they can, the treatment is not complete. The speed with which an unwanted emotion can be decisively, experientially eliminated is one of the aspects of energy psychology treatments that clients find most convincing.

One final observation from Ecker et al. (2012)—that the treatment leads to an “increased sense of unified self and wholeness” (p. 33)—is also consistent with the outcomes reported by energy psychology practitioners. More than just overcoming symptoms, when outdated emotional learnings are transformed, eliminating their limiting beliefs and mental models, new connections with neural networks that support optimal functioning are formed. With little prompting, clients talk about themselves and their situations in more adaptive ways. Their view of their world and their place in it becomes more complex yet more coherent and empowering. In a comprehensive study of the developing mind, Siegel (2012) found increasing integration and coherence to be the hallmarks of healthy development. Such self-organization is reinforcing. Siegel explained that “a positive emotion arises with increases in integration, whereas a negative emotion occurs with decreases in integration” (p. 338). This impulse toward greater integration and health is organic. While self-limiting emotional memories that have not been processed interfere with the movement toward increased integration and coherence, they forcefully reveal themselves in symptoms, waking imagery, dreams, and problematic behavioral patterns. It is as if they push for expression in the psyche’s calculus for promoting self-healing and

personal evolution until they have been adequately processed.

### *Unanswered Questions*

In discussing possible mechanisms of action in the “power therapies,” Commons (2000) suggested that they work at the “subcortical level of brain activity,” delaying conditioned stimuli from directly eliciting negative emotional responses “until the frontal lobes can perform their interpretive function” (p. 137). While this is consistent with current neurological understanding of what occurs when problematic implicit memories have been successfully processed, it does not address an even more basic question for the “power therapies,” or any other form of psychotherapy for that matter.

No one knows how all the parts of a single memory are coordinated in the brain. Various brain structures work simultaneously in creating a memory, and that memory seems to be distributed over many areas of the brain. A visual image may be stored here. A physical sensation there. A judgment about the experience somewhere else. How they are integrated is unknown. Moreover, after trying for more than two centuries to locate just where and how memory is stored, neuroscientists are still unable to fully explain a most curious finding by the French physiologist Jean Pierre Flourens in the early 1800s (Yildirim & Sarikcioglu, 2007), revisited by the American psychologist Karl Lashley in the 1940s (Lashley, 1950). Lashley, and Flourens before him, surgically removed various parts of the brains of laboratory animals and watched the effects on their behavior. For instance, after training a rat to perform a complex task, Lashley would remove a part of its cerebral cortex, the region of the mammalian brain involved in the higher functions of the nervous system, and observe whether it could still do the task. What was most perplexing is that not only could up to half the cortex be removed without curbing the ability to do the task, it did not matter which parts of the cortex were removed. Independent of the specific areas of the cortex that were left intact, as long as at least half the cortex remained, the rat could still do the task. The same finding in different animals by subsequent researchers led one of them to famously state in *Scientific American* the enigmatic observation that “memory is both

everywhere and nowhere in particular” (Boycott, 1965, p. 48).

### *What Is Added by an “Organizing Field” Hypothesis?*

Lashley (1950) speculated that recall must involve “some sort of resonance among a very large number of neurons” (p. 479), but the enigma remained of how memory fragments stored throughout the brain are organized into a single experience at the time of recall (known to neurologists and consciousness researchers as the “binding problem”; Revonsuo & Newman, 1999). In 1981, the British biologist Rupert Sheldrake proposed that morphic (form-generating) fields organize the actions of neurons in forming thought as well as all other biological processes (Sheldrake, 1981). Fields (think of iron filings taking shape on a piece of paper with a magnet beneath it) are “lines of force” whose nature has been debated since Michael Faraday’s studies of electromagnetism in the 1830s. Sheldrake built his morphic field hypothesis on the ways that quantum fields affect subatomic particles and extended the concept to atoms, molecules, cells, and more complex structures. The brain’s morphic field, in this theory, organizes the neurons responsible for memory into a coherent system in ways that obviously occur but no one has adequately explained. The field’s “lines of force,” according to Sheldrake, operate through “resonance” (as Lashley had suggested) rather than a direct exchange of energy, much as the electrical field of a person’s brain will start to resonate with the electromagnetic field of a nearby person’s heart (McCraty, 2004).

Sheldrake emerged as a hero within the holistic healing community while being discounted or worse by mainstream scientists. In a scathing critique shortly after his book came out, the senior editor of *Nature* suggested that “This infuriating tract … is the best candidate for burning there has been for many years” (Maddox, 1981, p. 246).

Nonetheless, energy fields have been shown to organize the activity in cells and group of cells. For example, after a wound, the immune system sets into motion a complex array of cascading chemicals to protect the body from further harm and to fix what has been damaged. At the same time, electrical currents connecting enormous numbers of cells are produced, *acting upon the body to stimulate growth and repair* (Liboff, 2004;

Oschman, 2000). Oschman (2000) explained that an electrical field is generated at the site of a wound, and it remains until the repair is complete, attracting mobile skin cells, white blood cells, and fibroblasts that close and heal the wounds. Finally, as the tissue heals, the current changes and “feeds back information on the progress of repair to surrounding tissues” (p. 94). This remarkable level of orchestration between energy fields and cells operates—according to Sheldrake (1981), McTaggart (2008), and others—not only with the cells involved in immune and repair responses but also with the neurons involved in learning.

An early description of how organizing fields influence health, dating back to the 1930s, emerged from the research of Harold Burr, a neuroanatomist at the Yale School of Medicine. Burr measured the electrical field around an unfertilized salamander egg and found that it was shaped like a mature salamander (Burr, 1972), as if the blueprint for the adult were already there in the egg’s energy field. The electrical axis that would later be aligned with the brain and spinal cord was already present in the unfertilized egg, as measured by a vacuum-tube voltmeter with extremely sensitive, nondistorting, silver/silver-chloride electrodes to detect microvolt differentials (devices that a contemporary engineer, after examining Burr’s scientific papers, described in a peer-reviewed journal as having been both reliable and “remarkable for their time”; Matthews, 2007, p. 55). Burr went on to find electrical fields surrounding numerous organisms, from molds to plants to frogs to humans, and he was able to describe electrical patterns that distinguished health from illness. In a hospital-based study conducted in the 1940s, voltage abnormalities around the cervix were found to predict malignancies with 85% accuracy in more than 1000 women presenting with gynecological symptoms (Langman & Burr, 1947). Burr demonstrated not only correspondences between specific pathologies and electrical characteristics of related organs but also that physical illness is *preceded* by changes in an organism’s electromagnetic field (Burr & Northrup, 1935), a potentially cardinal finding for preventive medicine and a core principle of energy medicine.

The unanswered question in Burr’s and Sheldrake’s theories (as well as in other notable formulations or speculation about an *underlying*

*reality*, such as Plato’s “Forms,” William James’s “subtler forms of matter,” Carl Jung’s “archetypes,” David Bohm’s “implicate order,” and Ervin Laszlo’s “interconnected universe”) is “what is the nature of this hypothetical medium” (Radin, 2006, p. 234) by which the underlying reality and the world as we see it are intertwined? The idea of some sort of “ether”—which was prevalent until experiments in the 1880s by Albert Michelson and Edward Morley failed to detect an “ether wind” from the Earth’s movement—keeps reemerging. Underlying influences of invisible fields in organizing physical phenomena have, in fact, been independently proposed within a variety of disciplines, including physics, medicine, neurology, and physiology (McTaggart, 2008). Consider “zero-point energy,” for instance. Formulated in a 1913 paper by Einstein and Otto Stern that built on the work of Max Planck, zero-point energy is the lowest possible energy a quantum mechanical system can have. It suggests that the vacuum, “the space between particles,” is not empty! Rather, there is “an ocean of microscopic vibrations in the space between things … the very underpinning of our universe [is] a heaving sea of energy” (McTaggart, 2008, p. xxvii). While the standard model of quantum physics leaves unanswered questions (Kane, 2005), zero-point energy has been supported by a number of experiments and is generally accepted, even if not entirely understood (Davis et al., 2005).

It is not necessary, however, to explain mysteries of nature that still elude quantum physicists in order to recognize that if resonance is the best explanation available for the attunement that occurs between one person’s heart and another’s brain as well as a host of other observable phenomena, that: (a) some medium is required, and (b) its nature would involve some sort of energy or line of force that we do not yet know how to detect directly. Returning to the way neurons are organized during complex processes such as consolidating or retrieving a memory, a 2001 paper introducing the concept of a “brainweb” (Varela, Lachaux, Rodriguez, & Martinerie, 2001) was, a decade later, the most frequently cited article published that year in *Nature*’s prestigious specialty journal on neuroscience (Luo et al., 2010). Attempting to explain how “scattered mosaics” of information over many brain regions are coordinated into a

unified experience, the investigators suggest that “frequency bands” (think of how a radio tunes into a particular frequency) synchronize cognitive activities throughout the brain. Neurologists at Stanford had previously proposed a “neural broadcasting theory” to explain, on a smaller scale, how neurons appear to influence neighboring neurons even when there is no electrochemical connection via axon and dendrite (Schuman & Madison, 1994). In all three theories—morphic fields, the brainweb, and neural broadcasting—the neurons *resonate* to a field or a frequency that coordinates their activities. Thomas Insel, the Director of the National Institute of Mental Health (2012), has, in fact, pointed to accumulating evidence that the synchronization of “large scale electrical oscillations across distant brain regions” allows content-specific information to be transmitted (p. 1). Laboratory studies have, for instance, shown that individual neurons in the prefrontal cortex are synchronized by oscillations in the brain’s electromagnetic fields, demonstrably impacting thought and behavior (Buschman, Denovellis, Diogo, Bullock, & Miller, 2012). Neurons resonate with brainwaves.

Resonance implies vibration. The vibratory nature of biological structures has been described by Oschman (2000, 2005). Every component of the body—from units within the cell; to the cell; to the organs; to complex structures such as the cardiovascular, respiratory, or collagen systems—is “immersed in, and generates, a constant stream of vibratory information” (Oschman, 2000, p. 71). Oschman suggested that a requirement for “complete health” is “total interconnection” of all the body’s systems at this vibratory level. These connections can become impaired by physical damage or emotional trauma, making the person vulnerable to disease and dysfunction. Interventions, including “acupuncture and other energy therapies,” however, “restore and balance the vibratory circuitry” (p. 71).

Building upon the morphic resonance, brainweb, and neural broadcasting theories and combining them with the role of energy psychology in facilitating emotional learning through reconsolidation as described earlier, the following formulation for explaining the role of energy fields in energy psychology treatments is derived: *Organizing fields* that (a) *coordinate* neural activity are (b) *impacted* via energy psychology

interventions to (c) *orchestrate* information-processing in ways that (d) *enhance* integration and coherence.

### *Visualizing an “Organizing Field” in a Clinical Situation*

Acupoint stimulation presumably enhances clinical outcomes at several levels. The brain imaging studies discussed earlier show that stimulating certain acupoints sends deactivating signals directly to the amygdala and produces brainwave patterns that reduce learned fear. As a result, cortisol and other stress chemicals are not released, the hippocampus and higher cortical regions stay online, and formative experiences can be reconsolidated in a manner that updates internal models and links them with adaptive neural networks. This formulation is useful as far as it goes. But—just as it is still a mystery how neural activity is coordinated in memory formation—the coordination of neural shifts following energy psychology treatments is yet to be decisively explained. Both point to the hypothesis of an organizing field that directs neural activity. That is, in addition to generating electromagnetic signals and brain waves that impact the amygdala, acupoint stimulation appears to also work at a more global level. While other “power therapies” may enhance the adaptive capacities of organizing fields in their own distinctive ways, acupoint stimulation works directly with the meridian system, bringing balance to the body’s energy pathways and then, by resonance, to its entire “vibratory circuitry” (Oschman, 2000, p. 67), including the energy fields that organize neural activity.

In energy psychology sessions, the client is invited to think about a memory or a trigger that brings up a troubling emotion. This, according to the hypothesis proposed here, activates the organizing field that connects the memory, the trigger, and the emotion. Rather than immediately attempting to process the memory, energy psychology protocols next stimulate acupoints to enhance the balance and coherence of the organizing field. While the concept of an organizing field may seem ephemeral and abstract—you cannot grasp it through your senses any more than you can visualize the concepts of magnetism or gravity—such fields are nonetheless believed to act upon matter, specifically in this case, neurons

and neural pathways. The potential roles of fields and frequencies in neural operations have been proposed in the morphic resonance, brainweb, and neural broadcasting theories discussed earlier. Even if we cannot see them, we can imagine them and speculate about their nature.

To turn this speculation into a more palpable experience, imagine that you have goggles that allow you to view the energy fields that organize neural activity. As sci-fi as that sounds, the claims of some healers that they “see” the energies they work with have been indirectly verified (Gerber, 2001; Hunt, 1995), perhaps representing an ability to perceive frequencies outside the normative range, analogous to the way dogs can hear sounds that humans cannot hear. So with our imaginary energy-sensitive goggles, we can speculate about the actions of energy fields in an energy psychology treatment session.

A new client, Richard, comes to you with concerns that his emotional reactions to his boss may be about to cost him his job. Virtually any evaluative comment about his performance, however respectfully delivered or constructively intended, causes Richard to feel severely criticized, become angry, and have difficulty maintaining a civil tone in his responses. His heart begins to beat more quickly, his breathing becomes shallow, and his hands start to tremble. During his first session with you, after a few rounds of tapping acupoints while recalling a recent incident with his boss, he quiets himself and scans his inward sensations to give a rating to the amount of distress the incident still evokes. This mini-mindfulness procedure often brings up earlier experiences related to the current situation, and an image arises of his father watching him play baseball on a playground and yelling at him in front of his friends when he misplays a ground ball. His humiliation around this incident is rated as an 8 on the 0–10 subjective units of distress scale. After several rounds of tapping, it is down to a 0. Two additional incidents, both of greater intensity and emblematic of his father’s charged criticism, next come to mind and are in sequence tapped down from 10 to 0. The incident with his boss is then quickly brought to 0. The next week, he proudly recounts two situations that would have triggered him

but did not. Table 1 speculates on how the organizing fields governing Richard’s relationship to criticism might have appeared through our magical goggles.

### *The Model in a Nutshell*

Explanations in the behavioral sciences are progressing toward increasingly precise and subtle frameworks, from the psychological to the biological to the neurochemical to the quantum mechanical to the realm of subtle energies. It may, however, only be at the energetic levels that we can begin to explain the speed and coordination of millions of extremely subtle and sophisticated processes occurring simultaneously. Acupoint stimulation, in addition to producing electromagnetic signals and brain waves that reduce activation in the brain’s emotional centers during the reconsolidation window, apparently impacts the “organizing fields” that govern neural activity. This brings momentary balance and harmony to the body’s energy pathways, and the brain’s organizing fields resonate with this balance. This enhances their capacity to orchestrate the resolution of intrusive, unprocessed memories. Resolving unprocessed experiences not only eliminates intrusive fragments from implicit memory, supporting the emergence of coherent explicit memories. It allows this more coherent narrative to network with other memories into neural networks that provide more adaptive guidance. In the model presented here, this ongoing process of the integration of new experiences and the reconsolidation of old learnings, vital in maintaining mental health, is directed by fields of energy, lines of force that carry information and organize neural activity.

### **Three Core Premises of an “Organizing Field” Model**

While scientific substantiation of this model may have to wait until instruments have been developed that can detect and track changes in organizing fields, the model is (a) congruent with constructs that have been scientifically established or reasonably well-established, (b) straightforward enough to be useful in guiding the practitioner, and (c) sophisticated enough to guide research (see **Conclusion**). The model is based on three core premises about energy, discussed in the following sections.

**Table 1:** Speculation on the Role of “Organizing Fields” in an Energy Psychology Treatment

The Experience	The Organizing Field
Richard is calmly going through his day.	The fields organizing Richard’s neural circuitry are, for the moment, relatively integrated and balanced.
Richard’s boss makes a constructive suggestion about one of Richard’s projects. Richard has a strong, negative, knee jerk reaction.	An organizing field has linked the neurons being fired by the current situation to memory fragments of his father’s fierce criticism. Richard’s meridians resonate with this memory and become disturbed, as they were in the original event.
“Implicit” (unrecognized) memories of hurt and unfairness from childhood are imposed onto the situation, impacting Richard’s perceptions, emotions, and behavior, though he is not consciously recalling the earlier experiences.	The disturbed meridians, through resonance, impact the organizing field so its state shifts to that of the earlier time. It activates additional implicit learnings from the playground and related incidents with accelerating power.
As Richard becomes calmer with the initial tapping, and mindful while assessing his distress level, the “playground” memory enters his conscious awareness.	The initial tapping and mindfulness create another state change in the meridians, causing the organizing field to become focused and able to access details of the earlier memory in a more coherent manner.
Richard begins to tap acupoints with the memory active and quickly feels more peaceful. Holding the scene simultaneously with no physiological arousal contradicts the expectations of Richard’s internal model, producing the mismatch necessary for the old learnings to be reconsolidated in a new way.	The acupoint stimulation brings balance to the meridians that had become disturbed during the recall of the playground and related incidents. The organizing field resonates with the restored balance and flow of energy, allowing it to bring the old learnings into explicit memory, to transform them, and to connect them with more adaptive organizing fields and neural networks.
The memories are now cohesive rather than emerging as intrusive perceptions, images, and emotions.	The organizing field has orchestrated a reconsolidation of the old learnings.
The next time his boss makes a suggestion about one of his projects, Richard receives it with no emotional overlay.	The unprocessed implicit learnings have been integrated into adaptive networks and are no longer there for Richard’s organizing field around criticism to activate.

### *Energy Is an Omnipresent Dimension of Body and Mind That Can Be Influenced to Impact Each in Desired Ways*

Like a miniature battery, each of the body’s cells stores and emits electricity. Information processing within a cell and communication among cells is achieved through electrical activity. Memories, feelings, and thoughts are encoded in patterns of tiny electrical impulses. Every breath, every muscle movement, and every morsel of food being digested, in fact, involves electrical energy. These electrical and electrochemical processes, along with more subtle energies, form the

foundation of an energy-attuned model of health and healing.

Subtle energies share a property with gravity, which is that neither can be seen or photographed or in any other way directly perceived through mechanical extensions of our senses. While the Earth’s gravity field remains invisible to our most delicate instruments, its effects are so easily demonstrated that its existence seems obvious. Like gravity, the human “life force” that is the focus of energy healing practitioners has never been directly imaged by scientific instruments. Unlike gravity, however, this “life force” is not accepted within conventional science. Yet its effects

can also be easily demonstrated. If you have it, you are alive. If you do not, you are dead. It is that simple. Energy medicine and conventional medicine would enter into an easier dialogue if the implications of this single fact were more widely recognized. If conventional medicine were more focused on the body's life force, it would first approach an illness with non-invasive energy interventions, and it would be more adept in preventing disease. Consider, for instance, modern thermography, where emanations in the infrared range of the electromagnetic spectrum detect the precursors of illness (Diakides & Bronzino, 2007) or Burr's (1972) early finding that disturbances may show up in an organism's energy field months before they manifest as tumors.

While the "life force" has not yet been detected by conventional scientific instruments, it contains an obvious essential property: the ability to sustain life. Many cultures have concepts and vocabularies for describing this "life force" or "vital energy," such as the Sanskrit *prana*, the Greek *pneuma*, the Japanese *ki*, and the Chinese *chi* or *qi* (pronounced "chee"). Though these terms have often been translated as "energy" in the West, each depicts a larger construct than electromagnetic energy. The concept of *qi*, for instance, provides the main theoretical basis for traditional Chinese medicine, philosophy, culture, and natural science (Jonas, 2003). Jonas explained (2003) that while it "has characteristics of energy such as the ability to work, to be accumulated, stored, discharged and projected from the body, *qi* also has characteristics of intelligence and information" (p. 103). *Prana*, a core concept in yoga and ayurvedic medicine, is understood as the life-sustaining energy that permeates the aura, the chakras, and the nadis, the subtle network of energy channels similar to the Chinese concept of meridians (Co & Robins, 2011).

Just as human anatomy contains many systems and structures, energy manifests in the body in many forms. Some of these energies have been measured by existing instrumentation. Others (subtle energies) have not been. Such energies are, however, said to be known for their effects: "Healers through the ages have perceived subtle energies intuitively and proven them through application" (Dale, 2009, p. 422). Dale explained, "Subtle doesn't mean delicate. In fact, science is beginning to suggest that the subtle—the as

yet immeasurable—actually directs" (p. xxi) the energies that are more familiar. So, for instance, the electromagnetic fields that appear to shape an organism's growth (e.g., Burr, 1972) may shadow more subtle information-laden energies that are actually influencing the electromagnetic field being detected. The role of energy fields in mental and physical health has been established in a number of arenas (Oschman, 2000, 2003). For instance, the human heart, which emits an electromagnetic field that is approximately 5,000 times as powerful as the electromagnetic field of the brain, surrounds the entire body, and extends 8 to 10 feet beyond it (Childre & Martin, 2000). This field governs an array of physiological processes, and its strength and coherence correspond with a person's physical and mental well-being (McCraty, Atkinson, Tomasino, & Bradley, 2009).

Healing applications of electrical stimulation and energy fields have also been documented. TENS (transcutaneous electrical nerve stimulation; Johnson & Martinson, 2006) and PEMF (pulsed electromagnetic field stimulation; Markov, 2008) machines are entering the medical mainstream. In an early meta-analysis of 15 studies, chronic wounds exposed to electrical stimulation healed 144% faster than comparable wounds that did not receive this treatment (Gardner, Frantz, & Schmidt, 1999). A progression of studies demonstrated that the electrical frequency of a chemical could have the same effect as the chemical itself. For instance, histamine increases heart rate, atropine decreases heart rate. Researchers exposed a beating heart to the *electrical frequency* of the histamine molecule and the heart rate increased; the electrical frequency of atropine decreased heart rate. While these findings are still controversial, the study, originally conducted in France, was replicated by independent research teams in Canada, Italy, and Israel before being published in *Nature* (Davenas et al., 1988). The electrical frequencies of the compounds were having the same effects as the compounds themselves! The principle has been extended to healing. Pancreatic tissue from healthy rats was scanned with a laser, and the information was converted into a wide bandwave signal. Rats that had been given a lethal dose of a toxin that destroys the pancreas were exposed to these bandwave signals. In the original experiment in Moscow, and two replications by other teams in other countries, all the rats receiving the toxin

without subsequent treatment died within 4 days; 90% of the rats exposed to the bandwave signals survived (Gariaev, Friedman, & Leonova-Gariaeva, 2006). Their stem cells were stimulated and they regenerated pancreatic tissue.

Church (2009), in reviewing evidence from a vast array of sources, summarized, “Energy is the currency in which all transactions in nature are given or received” (p. 114). Physiological processes in the brain and the body are influenced by a complex system of energy flows and fields, some of which we can readily detect and measure with existing instrumentation and some of which we cannot. The healing traditions of most cultures that live in closer harmony with nature than ours hold that bringing these energies into balance and harmony enhances health.

### *Energy Carries Information*

Information is carried by energy in countless devices, from wireless routers to cell phone towers. Energy has, in fact, been described as “information that vibrates” (Dale, 2009, p. 4), with changing amplitudes and frequencies being capable of coding information that can be “stored or applied” (p. 5). Electromagnetic waves extend from low frequencies, such as radio waves, whose wavelengths can extend over thousands of miles, to high frequencies, whose wavelengths are a fraction of the size of an atom.

Energy psychology interventions are believed to produce shifts in the energy systems that code psychological information, particularly the meridians, the chakras, and the biofield that surrounds the body. For instance, the chakras are an interrelated set of energy fields that—according to the energy healers who work with them—play a key role in processing memories and maintaining psychological patterns (Judith, 1987). The detail and subtlety of the information carried by such energies may be surprising, as in this account by energy healer and intuitive Donna Eden (2008):

Each chakra spirals down seven layers into the body. ... If I move into the field deeply enough, and reach the fourth, fifth, and sixth levels, I get images and stories. When I tell the stories, the person usually responds with a surprised confirmation. Working with the heart chakra of a morose 36-year-old woman, I related, “I feel I am looking out at the world

from the age of about 7, and I have just lost someone I love dearly. It is not a parent, perhaps a sibling? My grief is too much to bear. My heart is closing down.” Her startled and tearful reply: “That’s when Robert, my older brother, was accidentally shot by a neighbor boy who was playing with his father’s gun. He died 2 days later.” (pp. 155–156).

Beyond the memory carried in her chakra’s energy field were instructions that kept the woman, Gail, from risking deep intimacy. Implicit learnings are, in this rendition, coded in the energy field as well as the neurons. After her brother’s death, Gail had never again been able to allow herself to love that deeply. After the energy techniques brought balance and restoration to the disturbed energies locked in her heart chakra, there was an internal shift on this issue. The same reconsolidation sequence occurred as described earlier, but this time the energy intervention involved the heart chakra instead of acupoint stimulation. The pain of her brother’s death was activated, Gail’s heart chakra was simultaneously brought into balance, and being able to recall her brother’s death without pain in her heart was the juxtaposition experience that allowed her reflexive fear of intimacy to be eradicated and more adaptive strategies to develop. In fact, Gail reported a “breakthrough,” with her marriage entering deeper levels of intimacy, during the week following the session. While this may of course have been a coincidence, correspondences between shifts in core issues during energy healing sessions and changes in emotional and behavioral patterns are frequently reported.

The chakras, according to Eden (2008), carry psychological information, storing memory in a separate system that parallels, influences, and somewhat duplicates the memory stored in the brain’s neurons. Strange as this sounds to Western ears, “mental” processes are no longer believed to be limited to the brain. Neuroscientists have established that memory and intelligence are distributed throughout the body in a vast network of mind–body cellular communication (Pert, 1999).

If the first premise for a model of the mechanisms at play in energy psychology is the concept that energies that can be influenced impact health and mental health, the second premise is that energy carries information. To the degree that energy

psychology practitioners can influence the body's energies, they can alter stored information that underlies psychological processes.

### *Clinical Interventions Can Draw Upon the Fact That Energy Fields, Through Resonance, Influence Other Energy Fields as Well as Neural Activity*

Individuals resonate with one another energetically. A person's EEG (brain wave) patterns are, as we have seen, influenced by the EKG (heart wave) patterns of a nearby individual, even though there was no conscious intention to send or receive a signal (McCraty, 2004). These experiments led McCraty and his colleagues to conclude that "the nervous system acts as an antenna, which is tuned to and responds to the magnetic fields produced by the hearts of other individuals" (p. 549). McCraty and Childre (2010) also presented evidence that information encoded in the heart's magnetic field "is communicated throughout the body and into the external environment" and, in fact, creates "bi-directional feed-forward and feedback loops" with the Earth (pp. 20–21).

Resonance is (as in the way that plucking a guitar string tuned to C will cause the C string of another guitar across the room to vibrate) emerging as a unifying concept for understanding a range of unexplained phenomena. Sheldrake's (1981) morphic resonance hypothesis is the most comprehensive formulation, extending from subatomic particles to the evolution of culture. The concept has been applied by others to systems ranging from neural networks (Lashley, 1950; the "synchrony" of Varela et al., 2001) to human/environment interactions (McCraty & Childre, 2010). Of greatest relevance for understanding the effects of energy psychology interventions are the resonances (a) between acupoint stimulation and the body's energy pathways or meridians, (b) between the meridians and the "organizing fields" that orchestrate psychological processes, and (c) between these organizing fields and neural activity. In brief, acupoint stimulation impacts the meridian system, which through resonance, impacts organizing fields that, again through resonance, impact neural activity. This apparent ability of acupoint tapping to readily establish harmony and alignment at these three levels may be the source of its demonstrated ability to achieve a

range of clinical objectives with unusual speed and power.

## **Conclusion**

Three ways that energy psychology protocols impact the body's energies have been proposed: (a) electrochemical impulses reduce arousal in the limbic system during the reconsolidation window, which allows neural pathways maintaining outdated emotional learnings to be revised or eliminated; (b) delta waves are generated, which are also involved in depotentiating maladaptive emotional learnings; and (c) balancing the body's meridian energies by stimulating acupoints brings greater order and coherence to the organizing fields that regulate neural activity. By stimulating acupoints while problematic memories or triggers are mentally activated, the synapses maintaining the implicit learnings related to those memories or triggers are unlocked and reconsolidation can occur. The limbic system's reduced arousal (due to the acupoint stimulation) while the memory or trigger is still active becomes the "new normal."

This formulation has both research and clinical implications. The conceptual framework held by a researcher or clinician determines the questions that will be asked and the avenues that will be explored. If the framework excludes the role of the body's energies in psychological processes, the subsequent conclusions will be skewed toward aspects of the therapy that are not related to these underlying energy dynamics. Each of the premises of the working model, however, raises salient questions that can be investigated. If energy can be influenced to optimize mind and body (Premise 1), what are the most direct ways of engaging that energy and the most effective ways of influencing it? If energy carries information (Premise 2), can that information be accessed; can maladaptive information be altered? If energy fields, through resonance, influence one another as well as neural activity (Premise 3), what are the most effective ways to leverage this principle for therapeutic gain?

As an energy perspective is brought into research and treatment settings, new and extremely practical glimpses into nature's enigmas emerge. The tension between "expanded horizons" and critical thinking can, however, be challenging in any field, and markedly so when attributing

controversial outcomes whose causes are difficult to determine to energies that are difficult to detect. Nonetheless, empirical support for the existence and relevance of energies not usually considered in clinical practice—as surveyed in this article—is there for anyone to review. Despite its controversies, unexplained mechanisms of action, and push against the boundaries of conventional clinical frameworks, energy psychology is proving to be a potent intervention for health and well-being as well as a bridge into the mysterious world of subtle energies.

## References

- Adams, A., & Davidson, K. (2011). *EFT level 1 comprehensive training resource*. Fulton, CA: Energy Psychology Press.
- Adey, W. R., & Bawin, S. M. (1977). Brain interactions with weak electric and magnetic fields. *Neurosciences Research Program Bulletin*, 15, 1–129.
- Boycott, B. B. (1965). Learning in the octopus. *Scientific American*, 212(3), 42–50. doi:10.1006/ccog.1999.0393
- Buschman, T. J., Denovellis, E. L., Diogo, C., Bullock, D., & Miller, E.K. (2012). Synchronous oscillatory neural ensembles for rules in the prefrontal cortex. *Neuron*, 76, 838–846. doi:10.1016/j.neuron.2012.09.029
- Burr, H. S. (1972). *The fields of life*. New York, NY: Ballantine.
- Burr, H. S., & Northrup, F. S. C. (1935). The electro-dynamic theory of life. *Quarterly Review of Biology*, 10, 322–333. doi:10.1006/ccog.1999.0393
- Callahan, R. J. (1985). *Five minute phobia cure: Dr. Callahan's treatment for fears, phobias and self-sabotage*. Wilmington, DE: Enterprise.
- Callahan, R. J., & Callahan, J. (1996). *Thought Field Therapy (TFT) and trauma: Treatment and theory*. Indian Wells, CA: Thought Field Therapy Training Center.
- Callahan, R., & Callahan, J. (2011). *Tapping the body's energy pathways*. Indio, CA: Callahan Techniques.
- Childre, D. L., & Martin, H. (2000). The HeartMath solution: The Institute of HeartMath's revolutionary program for engaging the power of the heart's intelligence. New York, NY: HarperCollins.
- Church, D. (2009). *The genie in your genes: Epigenetic medicine and the new biology of intention*. Santa Rosa, CA: Elite.
- Church, D., & Feinstein, D. (in press). Energy psychology in the treatment of PTSD: Psychobiology and clinical principles. In N. Gotsiridze-Columbus, *Psychology of trauma*. Hauppauge, NY: Nova.
- Church, D., Piña, O., Reategui, C., & Brooks, A. (2011). Single session reduction of the intensity of traumatic memories in abused adolescents after EFT: A randomized controlled pilot study. *Traumatology*, 18, 73–79. doi:10.1177/1534765611426788
- Co, S., & Robins, E. B. (2011). *The power of prana: Breathe your way to health and vitality*. Boulder, CO: Sounds True.
- Collinge, W. (1998). *Subtle energy: Awakening to the unseen forces in our lives*. New York, NY: Warner Books.
- Commons, M. L. (2000). The power therapies: A proposed mechanism for their action and suggestions for future empirical validation. *Traumatology*, 6, 119–138. doi:10.1006/ccog.1999.0393
- Connolly, S., & Sakai, C. (2011). Brief trauma intervention with Rwandan genocide survivors using Thought Field Therapy. *International Journal of Emergency Mental Health*, 13, 161–172.
- Dale, C. (2009). *The subtle body: An encyclopedia of your energetic anatomy*. Boulder, CO: Sounds True.
- Davenas, E., Beauvais, F., Amara, J., Oberbaum, M., Robinzon, B., Miadonna, A., ... Benveniste, J. (1988). Human basophil degranulation triggered by very dilute antiserum against IgE. *Nature*, 333, 816–818. doi:10.1038/333816a0
- Davis, E. W., Teofilo, V. L., Haisch, B., Puthoff, H. E., Nickisch, L. J., Rueda, A., & Cole, D. C. (2005). Review of experimental concepts for studying the quantum vacuum field. In M. S. El-Genk (Ed.), *Space technology and applications international forum* (pp. 1390–1401). Melville, NY: American Institute of Physics.
- Devilly, G. J. (2005). Power therapies and possible threats to the science of psychology and psychiatry. *Australian and New Zealand Journal of Psychiatry*, 39, 437–445. doi:10.1080/j.1440-1614.2005.01601.x
- Dhond, R. P., Kettner, N., & Napadow, V. (2007). Neuroimaging acupuncture effects in the human brain. *Journal of Alternative and Complementary Medicine*, 13, 603–616. doi:10.1006/ccog.1999.0393
- Diakides, N. A., & Bronzino, J. D. (2007). *Medical infrared imaging*. Boca Raton, FL: CRC Press. doi:10.1006/ccog.1999.0393
- Diepold, J. H., & Goldstein, D. (2009). Thought Field Therapy and QEEG changes in the treatment of trauma: A case study. *Traumatology*, 15, 85–93. doi:10.1177/1534765608325304
- Duffy, M. C., & Levy, J. (Eds.). (2009). *Ether space-time and cosmology. Vol. 2: New insights into a key physical medium*. Montreal, Canada: C. Roy Keys.
- Ecker, B. (2010). Unlocking the emotional brain: Finding the neural key to transformation. *Psychotherapy Networker*, 34(5), 43–47, 60.
- Ecker, B., Ticic, R., & Hulley, L. (2012). *Unlocking the emotional brain: Eliminating symptoms at their roots using memory reconsolidation*. New York, NY: Routledge.
- Eden, D. (2008). *Energy medicine* (2nd ed.). New York, NY: Tarcher/Penguin.
- Fang, J., Jin, Z., Wang, Y., Li, K., Kong, J., Nixon, E. E., & Hui, K.-S. (2009). The salient characteristics of the central effects of acupuncture needling: Limbic-paralimbic-neocortical network modulation. *Human Brain Mapping*, 30, 1196–1206. doi:10.1006/ccog.1999.0393
- Feinstein, D. (2004). *Energy psychology interactive: Rapid interventions for lasting change*. Ashland, OR: Innersource.
- Feinstein, D. (2009). Facts, paradigms, and anomalies in the acceptance of energy psychology: A rejoinder to McCaslin's (2009) and Pignotti and Thyer's (2009) comments on Feinstein (2008a). *Psychotherapy: Theory, Research, Practice, Training*, 46, 262–269. doi:10.1037/a0016086
- Feinstein, D. (2010). Rapid treatment of PTSD: Why psychological exposure with acupoint tapping may be effective. *Psychotherapy: Theory, Research, Practice, Training*, 47, 385–402. doi:10.1037/a0021171

- Feinstein, D. (2012). Acupoint stimulation in treating psychological disorders: Evidence of efficacy. *Review of General Psychology*. Advance online publication. doi:10.1037/a0028602
- Feinstein, D., & Church, D. (2010). Modulating gene expression through psychotherapy: The contribution of non-invasive somatic interventions. *Review of General Psychology*, 14, 283–195. doi: 10.1037/a0021252
- Feinstein, D., & Eden, D. (2008). Six pillars of energy medicine: Clinical strengths of a complementary paradigm. *Alternative Therapies in Health and Medicine*, 14(1), 44–54.
- Gardner, S. E., Frantz, R. A., & Schmidt, F. L. (1999). Effect of electrical stimulation on chronic wound healing: A meta-analysis. *Wound Repair and Regeneration*, 7, 495–503. doi:10.1006/ccog.1999.0393
- Gariaev, P. P., & Friedman, M. J., & Leonova-Gariaeva, E. A. (2006). Crisis in life sciences: The wave genetics response. *Journal of Non-Locality and Remote Mental Interactions*, IV. Retrieved from <http://www.emergentmind.org/gariaev06.htm>
- Gerber, R. (2001). *Vibrational healing* (3rd ed.). Rochester, VT: Bear & Co.
- Haake, M., MüLler, H.-H., Schade-Brittinger, C., Basler, H. D., Schäfer, H., Maier, C., ... Molsberger, A. (2007). German acupuncture trials (GERAC) for chronic low back pain: Randomized, multicenter, blinded, parallel-group trial with 3 groups. *Archives of Internal Medicine*, 167, 1892–1898. doi:10.1001/Archinte.167.17.1892
- Harper, M. (2012). Taming the amygdala: An EEG analysis of exposure therapy for the traumatized. *Traumatology*, 18(2), 61–74. doi:10.1006/ccog.1999.0393
- Herbert, J. D., & Gaudiano, B. A. (2001). The search for the Holy Grail: Heart rate variability and Thought Field Therapy. *Journal of Clinical Psychology*, 57, 1207–1214. doi: 10.1002/jclp.1087
- Hui, K. K. S., Liu, J., Makris, N., Gollub, R. W., Chen, A. J. W., Moore, C. I., ... Kwong, K. K. (2000). Acupuncture modulates the limbic system and subcortical gray structures of the human brain: Evidence from fMRI studies in normal subjects. *Human Brain Mapping*, 9, 13–25. doi:10.1006/ccog.1999.0393
- Hui, K. K.-S., Liu, J., Marina, O., Napadow, V., Haselgrave, C., Kwong, K. K., & Makris, N. (2005). The integrated response of the human cerebro-cerebellar and limbic systems to acupuncture stimulation at ST 36 as evidenced by fMRI. *NeuroImage*, 27, 479–496. doi:10.1006/ccog.1999.0393
- Hunt, V. (1995). *Infinite mind: The science of human vibrations*. Malibu, CA: Malibu Publishing.
- Johnson, M., & Martinson, M. (2006). Efficacy of electrical nerve stimulation for chronic musculoskeletal pain: A meta-analysis of randomized controlled trials. *Pain*, 130, 157–165. doi:10.1016/j.pain.2007.02.007
- Jonas, W. B. (2003). Qigong: Basic science studies in biology. In W. B. Jonas & C. C. Crawford (Eds.), *Healing intention and energy medicine: Science, research methods and clinical implications* (p. 103). Philadelphia, PA: Elsevier. [Editors' introduction]
- Judith, A. (1987). *Wheels of life: A user's guide to the chakra system*. Woodbury, MN: Llewellyn.
- Kane, G. (2005). The dawn of physics beyond the standard model. *Scientific American*, 15(1), 4–11.
- Kurtz, R. (2007). *Body-centered psychotherapy: The Hakomi method* (rev. ed.). Mendocino, CA: LifeRhythm.
- Lambrou, P. T., Pratt, G. J., & Chevalier, G. (2003). Physiological and psychological effects of a mind/body therapy on claustrophobia. *Subtle Energies & Energy Medicine*, 14, 239–251.
- Lane, J. (2009). The neurochemistry of counterconditioning: Acupressure desensitization in psychotherapy. *Energy Psychology: Theory, Research, and Treatment*, 1(1), 31–44. doi:10.9769.2009.1.1.JRL
- Lang, T., Hager, H., Funovits, V., Barker, R., Steinlechner, B., Hoerauf, K., & Kober, A. (2007). Prehospital analgesia with acupressure at the Baihui and Hegu points in patients with radial fractures: a prospective, randomized, double-blind trial. *American Journal of Emergency Medicine*, 25, 887–893. doi: 10.1016/j.ajem.2007.01.016
- Langman, L., & Burr, H. S. (1947). Electrometric studies in women with malignancy of cervix uteri. *Science*, 105(2721), 209–210.
- Lashley, K. S. (1950). In search of the engram. In *Physiological mechanisms in animal behavior* (Society for Experimental Biology Symposium IV, pp. 454–482). Oxford, England: Academic Press.
- Laszlo, E., & Dennis, K. L. (Eds.). (2012). *The new science and spirituality reader*. Rochester, VT: Inner Traditions.
- Levine, P. A. (2010). *In an unspoken voice: How the body releases trauma and restores goodness*. Berkeley, CA: North Atlantic Books.
- Liboff, A.R. (2004). Toward an electromagnetic paradigm for biology and medicine. *Journal of Alternative and Complimentary Medicine*, 10, 41–47. doi:10.1006/ccog.1999.0393
- Lipton, B. H. (2005). *The biology of belief*. Santa Rosa, CA: Elite.
- Lohr, J. M. (2001). Sakai et al. is not an adequate demonstration of TFT effectiveness. *Journal of Clinical Psychology*, 57, 1229–1235. doi: 10.1002/jclp.1089
- Luo, L., Rodriguez, E., Jerbi, K., Lachaux, J.-P., Martinerie, J., Corbetta, M., ... & Craig, A. D. (2010). Ten years of *Nature Reviews Neuroscience*: Insights from the highly cited. *Nature Reviews Neuroscience*, 11, 718–726. doi: 10.1038/nrn2912
- Maddox, J. (1981). A book for burning? *Nature*, 293(5830), 245–246.
- Markov, M. S. (2008). Expanding use of pulsed electromagnetic field therapies. *Electromagnetic Biology & Medicine*, 26, 257–274. doi:10.1006/ccog.1999.0393
- Matthews, R. E. (2007). Harold Burr's biofields: Measuring the electromagnetics of life. *Subtle Energies & Energy Medicine*, 18(2), 55–61.
- McCaslin, D. (2009). A review of efficacy claims in energy psychology. *Psychotherapy: Research, Practice, Training*, 46, 249–256. doi:10.1006/ccog.1999.0393
- McCraty, R. (2004). The energetic heart: Bioelectromagnetic communication within and between people. In P. J. Rosch & M. S. Markov (Eds.), *Clinical applications of bioelectromagnetic medicine* (pp. 541–562). New York, NY: Marcel Dekker.
- McCraty, R., Atkinson, M., Tomasino, D., & Bradley, R. T. (2009). The coherent heart: Heart-brain interactions, psychophysiological coherence, and the emergence of system-wide order. *Integral Review*, 5(2), 100–115.

- McCraty, R., & Childre, D. (2010). Coherence: Bridging personal, social, and global health. *Alternative Therapies in Health and Medicine*, 16(4), 10–24.
- McNally, R. J. (2001). Tertullian's motto and Callahan's method. *Journal of Clinical Psychology*, 57, 1171–1174. doi: 10.1002/jclp.1083
- McTaggart, L. (2007). *The intention experiment: Using your thoughts to change your life and the world*. New York: Free Press.
- McTaggart, L. (2008). *The field: The quest for the secret force of the universe* (Rev. ed.). New York, NY: HarperCollins.
- National Institute of Mental Health. (2012, November 1). *In-synch brain waves hold memory of object just seen* [Press release]. Retrieved from <http://www.nimh.nih.gov/science-news/2012/in-sync-brain-waves-hold-memory-of-objects-just-seen.shtml>
- Nelson, R. D., Bradish, J., Dobyns, Y. H., Dunne, B. J., & Jahn, R. G. (1996). Field REG anomalies in group situations. *Journal of Scientific Exploration*, 10, 111–142.
- Northrup, C. (2008). Foreword. In D. Eden, *Energy medicine for women* (pp. xv–xx). New York, NY: Tarcher/Penguin.
- Ogden, P., Kekuni, M., & Pain, C. (2006). *Trauma and the body: A sensorimotor approach to psychotherapy*. New York, NY: Norton.
- Oldfield, H., & Coghill, R. (2011). *The dark side of the brain: Major discoveries in use of Kirlian photography and electrocrystal therapy*. Pontypool, Wales: Coghill Research Laboratories.
- Oschman, J. L. (2000). *Energy medicine: the scientific basis*. New York, NY: Harcourt.
- Oschman, J. L. (2003). *Energy medicine in therapeutics and human performance*. New York, NY: Elsevier.
- Oschman, J. L. (2005). Energy and the healing response. *Journal of Bodywork and Movement Therapies*, 9(1), 3–15. doi:10.1006/ccog.1999.0393
- Oz, M. (2007, November 20). *The Oprah Winfrey Show* [television broadcast]. Chicago, IL: American Broadcasting Company.
- Pert, C. B. (1999). *The molecules of emotion: The science behind mind-body medicine*. New York, NY: Simon & Schuster.
- Pignotti, M., & Thyer, B. (2009). Some comments on "Energy Psychology: A Review of the Evidence." Premature conclusions based on incomplete evidence? *Psychotherapy: Research, Practice, Training*, 46, 257–261. doi:10.1006/ccog.1999.0393
- Polster, E., & Poster, M. (1973). *Gestalt therapy integrated: Contours of theory and practice*. New York, NY: Brunner-Mazel.
- Poponin, V. (2002). *The DNA phantom effect: Direct measurement of a new field in the vacuum substructure*. Retrieved September 4, 2012, from [http://www.bibliotecapleyades.net/ciencia/ciencia\\_genetica04.htm](http://www.bibliotecapleyades.net/ciencia/ciencia_genetica04.htm)
- Radin, D. (2006). *Entangled minds: Extrasensory experiences in a quantum reality*. New York, NY: Simon & Schuster.
- Reich, W. (1973). The function of the orgasm: Sex-economic problems of biological energy (V. R. Carfagno, Trans.). In W. Reich, *The discovery of the orgone* (Vol. 1). New York, NY: Farrar, Straus and Giroux.
- Revonsuo, A., & Newman, J. (1999). Binding and consciousness. *Consciousness and Cognition*, 8, 123–127. doi:10.1006/ccog.1999.0393
- Roediger, H. L., Dudai, Y., & Fitzpatrick, S. M. (2007). *Science of memory concepts*. New York, NY: Oxford University Press. doi:10.1006/ccog.1999.0393
- Ruden, R. A. (2005). A neurological basis for the observed peripheral sensory modulation of emotional responses. *Traumatology*, 11, 145–158. doi: 10.1177/15347650501100301
- Ruden, R. A. (2010). *When the past is always present: Emotional traumatization, causes, and cures*. New York, NY: Routledge.
- Sakai, C. S., Connolly, S. M., & Oas, P. (2010). Treatment of PTSD in Rwandan genocide survivors using Thought Field Therapy. *International Journal of Emergency Mental Health*, 12(1), 41–50.
- Schmidt, S. (2012). Can we help just by good intentions? A meta-analysis of experiments on distant intention effects. *Journal of Alternative and Complementary Medicine*, 18, 529–533. doi:10.1089/acm.2011.0321
- Schuman, E. E., & Madison, D. V. (1994). Locally distributed synaptic potentiation in the hippocampus. *Science*, 263, 532–536. doi:10.1006/ccog.1999.0393
- Shapiro, F. (2001). *Eye Movement Desensitization and Reprocessing (EMDR): Basic principles, protocols, and procedures* (2nd ed.). New York, NY: Guilford Press.
- Shealy, N. (1998, June 20). *Acceptance speech upon receipt of the Alyce & Elmer Green Award for Excellence*. Eighth Annual Conference of the International Society for the Study of Subtle Energies and Energy Medicine, Boulder, CO.
- Sheldrake, R. (1981). *A new science of life: The hypothesis of morphic resonance*. Rochester, VT: Park Street Press.
- Siegel, D. J. (2010). *The mindful therapist: A clinician's guide to mindsight and neural integration*. New York, NY: Norton.
- Siegel, D. J. (2012). *The developing mind: How relationships and the brain interact to shape who we are* (2<sup>nd</sup> ed.). New York, NY: Guilford Press.
- Swanson, C. (2003). *The synchronized universe: New science of the paranormal*. Tucson, AZ: Poseidia.
- Swanson, C. (2010). *Life force, the scientific basis: Breakthrough physics of energy medicine, healing, chi and quantum consciousness*. Tucson, AZ: Poseidia.
- Swingle, P. G. (2010). Emotional Freedom Techniques (EFT) as an effective adjunctive treatment in the neurotherapeutic treatment of seizure disorders. *Energy Psychology: Theory, Research, and Treatment*, 2, 27–37. doi:10.9769.EPJ.2010.2.1.PGS
- Swingle, P. G., Pulos, L., & Swingle, M. K. (2004). Neurophysiological indicators of EFT treatment of posttraumatic stress. *Subtle Energies & Energy Medicine*, 15, 75–86.
- Takakura, N., & Yajima, H. (2009). Analgesic effect of acupuncture needle penetration: A double-blind crossover study. *Open Medicine*, 3(2). Retrieved from <http://www.openmedicine.ca/article/view/189/235>
- Tiller, W. A. (1997). *Science and human transformation: Subtle energies, intentionality and consciousness*. Walnut Creek, CA: Pavior.
- Tompkins, P., & Bird, C. (1973). *The secret life of plants: A fascinating account of the physical, emotional, and spiritual relations between plants and man*. New York, NY: Harper & Row.
- Varela, F., Lachaux, J.-P., Rodriguez, E., & Martinerie, J. (2001). The brainweb: Phase synchronization and large-

- scale integration. *Nature Reviews Neuroscience*, 2, 229–239. doi:10.1038/35067550
- Walker, M. P., & van der Helm, E. (2009). Overnight therapy? The role of sleep in emotional brain processing. *Psychological Bulletin*, 135, 731–748. doi: 10.1037/a0016570
- White, J., & Krippner, S. (1977). *Future science: Life energies and the physics of paranormal phenomena*. New York, NY: Anchor.
- Williams, E. A. (2003). *A cultural history of medical vitalism in Enlightenment Montpellier*. Burlington, VT: Ashgate.
- Yildirim, F. B., & Sarikcioglu, L. (2007). Marie Jean Pierre Flourens (1794–1867): An extraordinary scientist of his time. *Journal of Neurology, Neurosurgery, and Psychiatry*, 78, 852. doi:10.1136/jnnp.2007.118380

# Enjoy Emotional Freedom: Simple Techniques for Living Life to the Full

*Steve Wells and David Lake*

Exisle, 2010

Sofcover, 240 pages

\$27.95

ISBN 1921497483

Reviewed by Carol Atkinson

Anyone who uses energy healing knows that EFT (Emotional Freedom Techniques) works, and works well. Gary Craig's original protocol called for a Setup Statement repeated three times while rubbing "the Sore Spot" or tapping on the Karate Chop point. Then one would repeat a Reminder Phrase while tapping on acupuncture meridian points on the face and upper body. Psychologist Steve Wells and Dr. David Lake, a medical practitioner and psychotherapist, both Australian EFT experts, worked for many years with EFT and found that tapping while talking was an interesting and effective way to use Craig's work. Wells and Lake call their program SET, Simple Energy Techniques. What that means, in general, is that rather than create a specific Setup Statement, the practitioner talks with the client (or one can talk to oneself) about the issue, all the while tapping on specific spots without going through the established EFT process. This talking while tapping allows a clearing of a variety of layers surrounding the issue. SET drops the use of the Sore Spot and the Gamut point and adds in the ring finger, yet uses the rest of the traditional tapping points. SET also allows for random tapping, rather than a specific sequence. The practitioner can also select a few spots to tap.

Wells and Lake's book is accessible to someone who knows nothing about EFT, yet informative and interesting to an experienced EFT practitioner. The writing is clear, and the development and pace of the book is excellent. The book's sections are well formulated so that the reader is first introduced to EFT, then led through some EFT activities, and then from there to working with SET sequences. Next, the authors provide specific examples and support for such needs as PSTD, performance, health, success, and other issues. This is a good book to have on the shelf, and it's a great idea to tap while talking, thinking about the issue, and following (or chasing) thoughts and body sensations. The messages are persuasive that SET is effective. This book is well worth the price, and the time invested in reading it is well worth it for the reader's life and health. People continually thank Gary Craig for bringing through EFT. Wells and Lake should be sent some gratitude for this permutation of EFT. It's a good one.

## EFT Comprehensive Training Resource Level 1

*Ann Adams and Karin Davidson*

Energy Psychology Press, 2011

Softcover, 144 pages

\$25

ISBN 9781604150902

## EFT Comprehensive Training Resource Level 2

*Ann Adams and Karin Davidson*

Energy Psychology Press, 2011

Softcover, 190 pages

\$25

ISBN 9781604150971

Reviewed by Sue Gunner

These two books, *Emotional Freedom Techniques Comprehensive Training Resource*, Levels 1 and 2, by Ann Adams and Karin Davidson, are a valuable resource for the trainee EFT Practitioner, prior to, during and after the course and also for more experienced practitioners who may wish to refresh their memory, or have stuck to the same old formula and would like to use some new techniques for an unusual case. They are keyed to the “harmonized curriculum” for Level 1 and 2 trainings taught by the largest EFT certification organization, EFT Universe.

The authors have worked hard to convey EFT techniques in a clear, concise manner. There are refreshers at the beginning of the chapters and Test Your Knowledge sections at the end of the chapters, with the answers in the appendix.

There are sections on self help – the Personal Peace Procedure and also a section on EFT for animals. The authors have included useful visual SUD scores which could easily be used for adult and child clients. Up to date research on EFT has been included which would be valuable for further research for the reader.

The pictures are simple, easy to understand and transfer their message clearly. The case studies help the reader to become engaged and will help them to apply EFT to real life situations.

The *EFT Comprehensive Training Resource Level 1* contains chapters on the development and history of EFT, how to use EFT, a section on what to do before you tap, EFT Methods including the Tearless Trauma Technique and The Movie Technique, EFT for use with Physical Issues, EFT for Cravings, The Full Basic Recipe and Blocks to EFT.

The *EFT Comprehensive Training Resource Level 2* contains chapters on Points (a refresh of the Points used in EFT and may include some new ones the reader is currently not aware of, and Testing (SUDS). The remaining chapters are contained within three further headings. The Dungeon refers to chapters on Peace Without Pain and Leaving the Dungeon. Opening Doors to the Palace contains chapters entitled The Writing On The Walls, Reading the Writing (on the walls), Erasing the Writing (on the walls), Composing New Writing, Blocked Doorways and Trap Doors.

The third section entitled Lowering The Drawbridge contains chapters on Weeding Your Garden, which contains helpful hints on how to keep on working on yourself, and Leaving The Palace, which gives advice on ethics and building the client therapist relationship. The remaining two chapters within Lowering The Drawbridge include Working with Special Populations such as Children, Animals, Surrogate tapping etc. and the final chapter within this section gives further advice on keeping up your training, expanding the therapists experience level and finding a mentor to help you on your journey as a EFT Practitioner. Both volumes are highly recommended.

## EFT for PTSD

*Gary Craig*

Energy Psychology Press, 2008

Softcover, 290 pages

ISBN 978-1-60415-040-7

Reviewed by Angela Amias

*EFT for PTSD*, written by EFT founder Gary Craig, is written both for professionals working with individuals experiencing traumatic stress and for the individuals themselves. While *EFT for PTSD* begins by covering the basics of how to use EFT, the book focuses primarily on specialized techniques for using EFT with individuals experiencing PTSD, which can require more care and caution than treating less severe issues.

*EFT for PTSD* includes case histories and summaries written by other EFT practitioners who are highly experienced in working with individuals with PTSD, particularly veterans. Many of these sections include extended examples of actual EFT sessions which provide an opportunity to “see” the techniques in action. One technique of particular importance in treating EFT is the Tearless Trauma Technique, which involves tapping not on specifics (as is generally the case with EFT) but on the issue in a general way first, so as to reduce the emotional intensity surrounding the events before dealing with them in a more focused way.

While this book contains much useful information for professionals working with individuals with PTSD, it also includes some guidelines and suggestions for those individuals with PTSD who cannot or do not wish to seek professional assistance. The author does a good job carefully balancing his recommendation to seek professional assistance with practical suggestions for safely and effectively using EFT as a self-help technique. *EFT for PTSD* also includes a few stories of individuals who have successfully treated their own PTSD, providing a model for those who would like to work on resolving their own traumatic experiences.

I found this book extremely helpful in my own practice of EFT with clients. While I have had success treating some cases of PTSD using the basic skills presented in *The EFT Manual*, in recent months I'd noticed myself becoming more hesitant about using EFT in cases of PTSD, particularly in situations in which clients had high anxiety about dealing with past traumatic events. I found the lengthy examples of the use of the Tearless Trauma Technique to be very helpful. Having watched Gary Craig's video *6 Days at the VA* a few months ago, I was left feeling confused by the difference between the ‘one-minute wonders’ presented in the video and my own experience of working with very complex cases that required more finesse and more persistence. *EFT for PTSD* provides a wealth of techniques, suggestions, and case studies which make it an invaluable resource for therapists who treat individuals with PTSD.

# Heal Your Mind, Rewire Your Brain

*Patt Lind-Kyle*

Energy Psychology Press, 2010

Softcover, 263 pages

\$17.95

ISBN 978-1-60415-058-2

Reviewed by Steve Wells

The author's thesis is that through meditation and other "brain training" processes we can rewire our brain circuits and change our brain chemistry, thus consciously influencing our evolution towards more positive states of kindness, love, and caring for each other and our planet. By moving through deeper levels of meditation, and related interventions, which lead us to experience different frequencies of brain wave patterns and activate their associated chemical neurotransmitters, we can cause actual physical changes in our brain and experience deeply relaxing and more expansive states of being.

This is a self-help book divided into two sections. The first section provides an introduction to the anatomy of the brain and its associated functions, together with a summary of some interesting brain research and relevant insights from neuroscience. Findings on neuroplasticity of the brain, and evidence that focused attention can effect changes in our brain function and positively influence our life experience drove the authors search for evidence that meditation can alter brain functioning and positively influence emotions, behavior, and overall functioning. The author uses several useful models and metaphors to simplify her outline of brain functioning and make the terms and techniques accessible for the general reader.

The author uses a combination of tools, in particular an electroencephalograph neurofeedback system called the Brain Mirror, with other assessment devices including the Enneagram personality tool to assess client problems and design various meditation-based interventions aimed at producing positive brain changes and higher functioning. She provides examples of successful treatment using these tools with various clients in her own practice.

The book includes a basic overview of the Enneagram model of personality types, which the author uses in combination with brain wave information in treating clients. The model is proposed to provide helpful information on unconscious conditioned mental and emotional patterns which can inform the readers meditation practice, although its inclusion may introduce an unnecessary level of complexity for some general readers who might still benefit from the meditation practices.

The second part of the book includes information about the different brain wave patterns (beta, alpha, theta, and delta), an outline of the chemical, electrical, and experiential patterns associated with each, and detailed instructions on a variety of mediation techniques which can assist in evoking that brain wave pattern and activating its associated internal chemical, physical and experiential changes. Also included is a brief outline of the author's Face it, Embrace it, and Erase it Exercise, which combines recounting of emotionally upsetting events with visualisation and techniques such as EFT or EMDR to transform the experience, although many professionals would be rightly concerned with the inclusion of EMDR as a self-help tool in a book of this nature.

The strength of the book however is in its detailed and ordered explanation of meditation techniques, and how easily accessible it renders these for the general user. Detailed written instructions are given for each of the numerous meditation techniques outlined, along with useful instructions for journaling your experiences. The author also has her own meditation cds/downloads which support the meditation exercises in the book, although these must be purchased separately.

# Personal Mythology: Using Ritual, Dreams, and Imagination to Discover Your Inner Story

*David Feinstein and Stanley Krippner*

Energy Psychology Press, 2009

Softcover, 352 pages

\$18.95

ISBN 978-1604150360

Reviewed by Angela Amias

In *Personal Mythology*, authors David Feinstein, PhD, and Stanley Krippner, PhD present a 12-week self-exploration course to discover and reshape the personal mythologies that guide the reader's/participant's life. The authors, both psychologists, draw from a number of psychological traditions in developing this course. While the approach is grounded in Jungian psychology, utilizing guided visualization, dream work, and experiential techniques, the authors draw from many different theoretical approaches in formulating their program, integrating cognitive-behavioral, positive psychology, and behavioral exercises and techniques. In addition, the authors include in the 3<sup>rd</sup> edition a "support guide" delineating how the reader can seamlessly integrate energy psychology techniques into the course.

This 12-week self-help course, which can also be used by practitioners in a group therapy setting, guides the participant through five distinct stages. In Stage 1, the individual identifies the prevailing myth, which is rooted in one's personal experiences, as well as being influenced by culture and biology. In Stage 2, the individual identifies the emerging counter-myth. Stage 3 involves understanding the conflict between the old and counter myths. In Stage 4, the individual begins the resolution of this mythic conflict and facilitates the synthesis of the old and counter myths into a new, guiding myth. And in Stage 5, the individual refines this guiding mythology and begins integrating it into daily life.

There are several ways in which EFT fits nicely with this model. The authors caution that this program can be an emotionally difficult, as it delves deeply into the individual's psyche and can stir up troubling memories, often those originating in early childhood experiences. In this way, EFT is an ideal component of the process as it can be used to reduce or eliminate the emotional charge associated with these memories. In addition, this program is designed to explore and discover those guiding beliefs (or myths) that often reside below an individual's awareness and, therefore, are usually difficult to identify and address directly. Once identified through the use of the program's exercises, EFT can be used to facilitate the movement from negative beliefs about the self and the world to positive beliefs. The support guide on integrating energy psychology into the course provides numerous suggestions for each stage of the program.

As a psychotherapist, I was very excited by the potential of using this book within the context of group therapy. I would be cautious, however, in recommending the book as a self-help program to clients who have any history of childhood trauma or serious mental illness, given the powerful nature of the exercises presented in the book. The authors do include a similar cautionary note in their introduction, as well as providing a support guide entitled "If the program becomes unsettling."

## ABSTRACTS

---

### Commonality and specificity of acupuncture action at three acupoints as evidenced by fMRI

Claunch, J. D., Chan, S. T., Nixon, E. E., Qiu, W. Q., Sporko, T., Dunn, J. P., Kwong, K. K., & Hui, K. K. American Journal of Chinese Medicine (2012), 40(4), 695-712.

#### Abstract

Previous work from our team and others has shown that manual acupuncture at LI4 (hegu), ST36 (zusanli), and LV3 (taichong) deactivates a limbic-paralimbic-neocortical brain network, and at the same time activates somatosensory regions of the brain. The objective of the present study was to explore the specificity and commonality of the brain response to manual acupuncture at LI4, ST36, and LV3, acupoints that are located on different meridians and are used to treat pain disorders. We used functional magnetic resonance imaging (fMRI) to monitor the brain responses to acupuncture at three different acupoints; we examined 46 healthy subjects who, according to their psychophysical responses, experienced *de-qi* [arrival of *qi*, characterized by numbness or tingling] sensation during acupuncture. Brain responses to stimulation at each of the acupoints were displayed in conjunction with one another to show the spatial distribution. We found clusters of deactivation in the medial prefrontal, medial parietal, and medial temporal lobes showing significant convergence of two or all three of the acupoints. The largest regions showing common responses to all three acupoints were the right subgenual BA25, right subgenual cingulate, right isthmus of the cingulum bundle, and right BA31. We also noted differences in major sections of the medial prefrontal and medial temporal lobes, with LI4 predominating in the pregenual cingulate and hippocampal formation, ST36 predominating in the subgenual cingulate, and LV3 predominating in the posterior hippocampus and posterior cingulate. The results suggest that although these acupoints are commonly used for anti-pain and modulatory effects, they may mobilize the same intrinsic global networks, with substantial overlap of common brain regions to mediate their actions. Our findings showing preferential response of certain limbic-paralimbic structures suggest acupoints may also exhibit relative specificity.

### The cutaneous intrinsic visceral afferent nervous system: A new model for acupuncture analgesia

Silberstein, M.

Journal of Theoretical Biology (2009), 261(4), December, 637-642.

#### Abstract

The mechanism of acupuncture, whilst not known with certainty, has previously been considered to be stimulatory. A novel hypothesis is presented here in which C fiber tactile afferent axons bifurcate at acupuncture points and then diverge, running along acupuncture meridians, to subsequently communicate with Merkel cells. It is proposed that acupuncture disrupts the bifurcation of these axons, preventing neural transmission between Merkel cells as well as central communication with the spinal cord. Making use of the known phenomenon that acupuncture points have lower electrical resistance than adjacent skin, this hypothesis was tested using an electrical circuit model and successfully predicted the observed 10(3) reduction in skin resistance at acupuncture points. In addition to explaining acupuncture and the roles of both Merkel cells and C fiber tactile afferents, the model has greater implications for neuroscience, through the postulation of a new division of the autonomic nervous system.

# **Quality of natural product clinical trials: A comparison of those published in alternative medicine versus conventional medicine journals**

*Cochrane, Z. R., Gregory, P., & Wilson, A.*

Journal of Dietary Supplements (2011), 8(2), June, 135-143.

doi: 10.3109/19390211.2011.561823

## **Objective**

To compare the quality of natural product clinical trials published in alternative medicine journals versus those published in conventional medicine journals.

## **Design**

Systematic search and review of the literature. Randomized controlled trials of natural products were included if they were published in English between 2003 and 2008. Articles were categorized by their journal of publication (alternative medicine versus conventional medicine). Two independent reviewers evaluated study quality using guidelines from the Cochrane Collaboration. The results with respect to the primary outcome (positive or negative) were also assessed.

## **Results**

Thirty articles were evaluated, 15 published in alternative medicine journals and 15 in conventional medicine journals. Of articles published in alternative medicine journals, 33.33% ( $n = 5$ ) were considered low quality, and none were considered high quality. Of articles published in conventional medicine journals, 26.67% ( $n = 4$ ) were considered low quality and 6.67% ( $n = 1$ ) were considered high quality. Two-thirds of all trials reviewed were of unclear quality, due to inadequate reporting of information relating to the study's methodology. Similar proportions of positive and negative primary outcomes were found in alternative and conventional medicine journals, and low-quality articles were not more likely to report a positive primary outcome (Fisher's exact test, two-tailed  $p = .287$ ).

## **Conclusion**

The quality of natural product randomized controlled trials was similar among alternative and conventional medicine journals. Efforts should be made to improve the reporting of natural product clinical trials for accurate determinations of study quality to be possible.

# **Researching complementary and alternative treatments: The gatekeepers are not at home**

*Fonnebo, V., Grimsgaard, S., Walach, H., Ritenbaugh, C., Norheim, A. J., Macpherson, H., Lewith, G., Launso, L., Koithan, M., Falkenberg, T., Boon, H., & Aickin, M.*  
BMC Medical Research Methodology (2007), 7, February 11, 7.

## **Background**

To explore the strengths and weaknesses of conventional biomedical research strategies and methods as applied to complementary and alternative medicine (CAM), and to suggest a new research framework for assessing these treatment modalities.

## **Discussion**

There appears to be a gap between published studies showing little or no efficacy of CAM, and reports of substantial clinical benefit from patients and CAM practitioners. This gap might be partially due to the current focus on placebo-controlled randomized trials, which are appropriately designed to answer questions about the efficacy and safety of pharmaceutical agents. In an attempt to fit this assessment strategy, complex CAM treatment approaches have been dissected into standardized and often simplified treatment methods, and outcomes have been limited. Unlike conventional medicine, CAM has no regulatory or financial gatekeeper controlling their therapeutic agents before they are marketed. Treatments may thus be in widespread use before researchers know of their existence. In addition, the treatments are often provided as an integrated whole system of care, without careful consideration of the safety issue. We propose a five-phase strategy for assessing CAM built on the acknowledgement of the inherent, unique aspects of CAM treatments and their regulatory status in most Western countries. These phases comprise: (1) context, paradigms, philosophical understanding and utilization; (2) safety status; (3) comparative effectiveness; (4) component efficacy; and (5) biological mechanisms.

## **Summary**

Using the proposed strategy will generate evidence relevant to clinical practice, while acknowledging the absence of regulatory and financial gatekeepers for CAM. It will also emphasize the important but subtle differences between CAM and conventional medical practice.

# **Intensive group cognitive treatment and individual cognitive therapy vs. treatment as usual in social phobia: A randomized controlled trial**

*Mörberg, E., Clark, D. M., Sundin, O., & Aberg Wistedt, A.*  
Acta Psychiatrica Scandinavica (2007), 115(2), February, 142-54.

## **Abstract**

To compare the effects of an intensive group cognitive treatment (IGCT) to individual cognitive therapy (ICT) and treatment as usual (TAU) in social phobia (DSM-IV).

## **Method**

One hundred patients were randomized to: IGCT involving 16 group sessions spread over 3 weeks; ICT involving 16 shorter weekly sessions in 4 months; and TAU involving an indicated selective serotonin reuptake inhibitor (SSRI) with therapy sessions as required for 1 year. The main outcome measure was a Social Phobia Composite that combined several standardized self-report measures. Diagnostic assessment was repeated at 1-year follow-up.

## **Results**

Significant improvements were observed with all treatments. ICT was superior to IGCT and TAU, which did not differ in overall effectiveness.

## **Conclusion**

The study confirms and extends previously reported findings that ICT is more effective than group cognitive treatment and treatment with SSRIs. IGCT lasts only 3 weeks, and is as effective as more protracted TAU.

# **Exposure with and without cognitive therapy for generalized social phobia: Effects of individual and group treatment**

*Scholing, A., & Emmelkamp, P. M.*

Behaviour Research and Therapy (1993), 31(7), September, 667-681.

## **Abstract**

Patients with generalized social phobia ( $n = 73$ ) were randomly allocated to two treatment modalities: (1) group or (2) individual treatment, and to three treatment packages: (1) two blocks of exposure in vivo (2) a block cognitive therapy followed by a block exposure in vivo, or (3) two blocks cognitive-behavioral treatment in which both strategies were integrated from the start. All treatments consisted of 16 sessions, given in two treatment blocks of 4 weeks each, separated by a no-treatment phase of 4 weeks. Self-report assessments were held before and after the treatment blocks and at 3-month follow-up. Significant differences were found between effects of the first treatment block vs. those of the 4-week waiting-list period. Repeated measures MANOVA's demonstrated significant time effects after both treatment blocks and at follow-up, indicating improvement for the group as a whole. After the first treatment block the integrated treatment did significantly worse than either exposure in vivo or cognitive therapy in decreasing somatic complaints. On the other variables no differences among the treatments were found. At follow-up a significant interaction was found between treatment package and modality on the variable cognitions: largest progress was found in the group treatment with cognitive therapy followed by exposure in vivo; smallest progress was found in the integrated group treatment. Results are discussed and recommendations for further research are given.

# **Use of magnetic nanoparticles to visualize threadlike structures inside lymphatic vessels of rats**

*Johng, H. M., Yoo, J. S., Yoon, T. J., Shin, H. S., Lee, B. C., Lee, C., Lee, J. K., & Soh, K. S.*

Evidence Based Complementary and Alternative Medicine (2007), 4(1), March, 77-82.

doi: 10.1093/ecam/nel057

## **Abstract**

A novel application of fluorescent magnetic nanoparticles was made to visualize a new tissue that had not been detectable by using simple stereomicroscopes. This unfamiliar threadlike structure inside the lymphatic vessels of rats was demonstrated *in vivo* by injecting nanoparticles into lymph nodes and applying magnetic fields on the collecting lymph vessels so that the nanoparticles were taken up by the threadlike structures. Confocal laser scanning microscope images of cryosectioned specimens exhibited that the nanoparticles were absorbed more strongly by the threadlike structure than by the lymphatic vessels. Further examination using a transmission electron microscope revealed that the nanoparticles had been captured between the reticular fibers in the extracellular matrix of the threadlike structures. The emerging technology of nanoparticles not only allows the extremely elusive threadlike structures to be visualized but also is expected to provide a magnetically controllable means to investigate their physiological functions.

# **Feulgen reaction study of novel threadlike structures (bonghan ducts) on the surfaces of mammalian organs**

*Shin, H. S., Johng, H. M., Lee, B. C., Cho, S. I., Soh, K. S., Baik, K. Y., Yoo, J. S., & Soh, K. S.*

Anatomical Record (Part B, New Anatomist) (2005), 284B, 35-40.

## **Abstract**

Threadlike structures on the surfaces of internal organs, which are thought to be part of the Bonghan duct system, were first reported about 40 years ago but have been largely ignored since then. Recently, they were rediscovered, and in this study we discuss the Feulgen reaction that specifically stains DNA in order to identify these structures on the surface of rabbit livers as part of the Bonghan system. The distribution, shapes, and sizes of their nuclei are found to be similar to those of intravascular threadlike structures. The endothelial nuclei are rod-shaped, 10-20 micrometres long, and aligned in a broken-line striped fashion. The threadlike structure consists of a bundle of several subducts, which is a characteristic feature of Bonghan ducts and distinguishes them morphologically from lymphatic vessels. In addition, the Feulgen reaction clearly demonstrates that the subducts pass through a corpuscle, which is usually irregular or oval-shaped and is connected to two or several threadlike structures that form a web on the surfaces of organs. Furthermore, spherical granules of about 1 micrometre in diameter are detected in the subducts. These granules were well stained by using the Feulgen reaction, which implies that they contain DNA. According to previous reports, a granule is a type of microcell and plays an essential role in the physiology and therapeutic effect of the Bonghan system and acupuncture. This role has yet to be elucidated.

# **Bonghan duct and acupuncture meridian as optical channel of biophoton**

*Soh, K. S.*

Journal of the Korean Physical Society (2004), 45(5), November, 1196-1198.

## **Abstract**

A biophoton in connection with intercellular communication is introduced, with its important source DNA. The Bonghan duct as anatomical structure of acupuncture meridians is considered with its flowing contents, DNA granules. A hypothesis of an optical channel of coherent biophotons is proposed as a new communication and control network of photons, which is the physiological function of Bonghan ducts. This can explain scientifically the therapeutic effects of acupuncture.

# **Biophotonics in the infrared spectral range reveal acupuncture meridian structure of the body**

*Schlebusch, K. P., Maric-Oehler, W., & Popp, F. A.*

Journal of Alternative and Complementary Medicine (2005), 11(1), February, 171-173.

## **Abstract**

This study shows, for the first time, evidence of the existence of the acupuncture meridian structure in the human body. After moxibustion (or similar light stimulation) of the body in the 3-5 micrometre range, “light channels” appear on the body, which appear to be identical to what are known as meridians in all textbooks of traditional Chinese medicine. These findings appear not only to confirm the existence of acupuncture meridians, but they also open a new window on understanding the energy transfer dynamics of the human body. Furthermore, it is likely that living matter is not in the ground state, but permanently electronically excited.

# **Acupuncture for the trauma spectrum response: Scientific foundations, challenges to implementation**

*Jonas, W. B., Walter, J. A. G., Fritts, M., & Niemtzow, R. C.*

Medical Acupuncture (2011), 23(4), 249-262.

DOI: 10.1089/acu.2011.0840

## **Abstract**

The long wars in Iraq and Afghanistan have produced extensive and often repeated trauma to U.S. service members and their families. These injuries occur to the mind, the brain, the body, and the soul. The current approach to management of these injuries follows the standard medical model that attempts to isolate the pathophysiological locations and processes affected by the injury and provide specialized care for that part of the person—psychological treatment for mind injuries, neurological treatment for brain injuries, and surgical and rehabilitation approaches for body injuries. This model is overwhelmingly dominated by the use of drugs for symptom management. Yet research has shown that, no matter where an injury is located, its impact and the healing responses to it cut across these boundaries resulting in a common symptomatic and functional spectrum. The authors of this article have called this the war-related trauma spectrum response (wrTSR) and propose a better approach to this spectrum, which is to induce whole-person healing responses not specialized to addressing the injury cause or location. Acupuncture appears to be such an approach. This article reviews the conceptual and scientific foundations of wrTSR, makes the case for managing it in a holistic manner, and reviews the evidence for using acupuncture as a treatment across the trauma response spectrum. This article then discusses the challenges to implementation of acupuncture in the military and veterans’ systems and proposes direct comparative effectiveness, health services, and program evaluation approaches to providing the evidence needed to broaden acupuncture’s use.

# **Acupuncture at ST36 prevents chronic stress-induced increases in neuropeptide Y in rat**

*Eshkevari, L., Egan, R., Phillips, D., Tilan, J., Carney, E., Azzam, N., Amri, H., & Mulroney, S. E.*  
Experiments in Biological Medicine (Maywood) (2012), 237(1), January 1, 18-23.

## **Abstract**

Chronic stress, as seen in posttraumatic stress disorder (PTSD), can exacerbate existing diseases. Electroacupuncture (EA) has been proposed to treat chronic stress, although information on its efficacy or mechanism(s) of action is limited. While many factors contribute to the chronic stress response, the sympathetic peptide, neuropeptide Y (NPY), has been shown to be elevated in chronic stress and is hypothesized to contribute to the physiological stress response. Our objective was to determine if EA at acupuncture point stomach 36 (ST[36]) is effective in mitigating cold stress-induced increase in NPY in rats. Both pretreatment and concomitant treatment with EA ST(36) effectively suppressed peripheral and central NPY after 14 d of cold stress ( $P < 0.05$ ). The effect was specific, as NPY in Sham-EA rats was not different than observed in stress-only rats. Additionally, the effect of EA ST(36) was long-lasting, as NPY levels remained suppressed despite early cessation of EA ST(36), while exposure to cold stress was continued. In the paraventricular nucleus (PVN), it was notable that changes in NPY mirrored plasma NPY levels, and that the significant elevation in PVN Y1 receptor observed with stress was also prevented with EA ST(36). The findings indicate that EA ST(36) is effective in preventing one of the sympathetic pathways stimulated during chronic stress, and thus may be a useful adjunct therapy in stress-related disorders.

# **Getting the grip on nonspecific treatment effects: Emesis in patients randomized to acupuncture or sham compared to patients receiving standard care**

*Enblom, A., Lekander, M., Hammar, M., Johnsson, A., Onelöv, E., Ingvar, M., Steineck, G., & Börjeson, S.*  
PLoS One (2011), 6(3), March 23, e14766.

## **Background**

It is not known whether delivering acupuncture triggers mechanisms cited as placebo and if acupuncture or sham reduces radiotherapy-induced emesis more than standard care.

## **Methodology/Principal Findings**

Cancer patients receiving radiotherapy over abdominal/pelvic regions were randomized to verum (penetrating) acupuncture ( $n=109$ ; 99 provided data) in the alleged antiemetic acupuncture point PC6 or sham acupuncture ( $n=106$ ; 101 provided data) performed with a telescopic non-penetrating needle at a sham point two to three times per week during the whole radiotherapy period. The acupuncture cohort was compared to a reference cohort receiving standard care ( $n=62$ ; 62 provided data). The occurrence of emesis in each group was compared after a mean dose of 27 Gray. Nausea and vomiting were experienced during the preceding week by 37% and 8% in the verum acupuncture group, 38% and 7% in the sham acupuncture group, and 63% and 15% in the standard care group, respectively. The lower occurrence of nausea in the acupuncture cohort (verum and sham) compared to patients receiving standard care (37% versus 63%, relative risk [RR] 0.6, 95% confidence interval [CI] 0.5-0.8) was also true after adjustment for potential confounding factors for nausea (RR 0.8, CI 0.6-0.9). Nausea intensity was lower in the acupuncture cohort (78% no nausea, 13% a little, 8% moderate, 1% much) compared to the standard care cohort (52% no nausea, 32% a little, 15% moderate, 2% much) ( $p=0.002$ ). The acupuncture cohort expected antiemetic effects from their treatment (95%). Patients who expected nausea had increased risk for nausea compared to patients who expected low risk for nausea (RR 1.6; CI 1.2-2.4).

## **Conclusions/Significance**

Patients treated with verum or sham acupuncture experienced less nausea and vomiting compared to patients receiving standard care, possibly through a general care effect or due to the high level of patient expectancy.

# **Brief treatment of symptoms of post-traumatic stress disorder (PTSD) by use of Accelerated Resolution Therapy (ART)**

*Kip, K. E., Elk, C. A., Sullivan, K. L., Kadel, R., Lengacher, C. A., Long, C. J., Rosenzweig, L.,*

*Shuman, A., Hernandez, D. F., Street, J. D., Girling, S. A., & Diamond, D. M.*

Behavioral Sciences (2012), 2(2), 115-134.

doi: 10.3390/bs2020115

## **Abstract**

Post-traumatic stress disorder (PTSD) is a prevalent, disabling anxiety disorder. This prospective cohort study reports on a new exposure-based therapy known as Accelerated Resolution Therapy (ART) that incorporates the use of eye movements administered in a brief treatment period (one to five 1-hour sessions within 3 weeks). Eighty adults aged 21–60 years with symptoms of PTSD were recruited from the Tampa Bay area. The ART-based psychotherapy was designed to minimize anxiety and body sensations associated with recall of traumatic memories and to replace distressing images with favorable ones. Participants' mean age was 40 years, 77% were female, and 29% were Hispanic. Participants underwent a median of three ART sessions, 66 of 80 (82.5%) completed treatment, and 54 of 66 (81.8%) provided 2-month follow-up data. Mean scores pre- and post-ART and at 2-month follow-up were: PTSD Checklist:  $54.5 \pm 12.2$  vs.  $31.2 \pm 11.4$  vs.  $30.0 \pm 12.4$ ; Brief Symptom Inventory:  $30.8 \pm 14.6$  vs.  $10.1 \pm 10.8$  vs.  $10.1 \pm 12.1$ ; Center for Epidemiologic Studies Depression Scale:  $29.5 \pm 10.9$  vs.  $11.8 \pm 11.1$  vs.  $13.5 \pm 12.1$ ; Trauma Related Growth Inventory-Distress scale:  $18.9 \pm 4.1$  vs.  $7.4 \pm 5.9$  vs.  $8.2 \pm 5.9$  ( $p < 0.0001$  for all pre-ART vs. post-ART and 2-month comparisons). No serious adverse events were reported. ART appears to be a brief, safe, and effective treatment for symptoms of PTSD.

# **The outcome of body psychotherapy research**

*May, J.*

U.S. Association for Body Psychotherapy Journal (2005), 4(2), 93-115.

## **Abstract**

This article attempts to survey all empirical studies on the outcome of body psychotherapy in the English language. Because some of these studies would not meet empirical criteria in peer-reviewed journals, I called this literature "objective." Much of this literature was available only in back issues of journals with limited distribution, personal communications, and theses/dissertations. I located 6 retrospective surveys, 9 efficacy studies, and 18 effectiveness studies. This article describes the studies, providing a resource for investigators planning future studies. It also summarizes, evaluates, and describes the general trends of the literature. More study is needed and many questions remain unresolved. Nevertheless, a body of literature is slowly developing that offers support for body psychotherapy under some conditions.

# **Neural correlates of the individual emotional Stroop in borderline personality disorder**

*Wingenfeld, K., Rullkoetter, N., Mensebach, C., Beblo, T., Mertens, M., Kreisel, S., Toepper, M., Driessens, M., & Woermann, F. G.*

*Psychoneuroendocrinology (2009), 34(4), May, 571-586.*

## **Objective**

Emotional dysregulation is a key feature of borderline personality disorder (BPD) with altered inhibitory functions having suggested as being crucial. The anterior cingulate cortex and further prefrontal brain regions are crucial for response inhibition. The regulation of emotions is ensured via inhibitory control over the amygdala. The present study aimed to investigate neural correlates of response inhibition in BPD by using an emotional Stroop paradigm extending the task to word stimuli that were related to stressful life events.

## **Methods**

Twenty BPD patients and 20 healthy controls underwent functional magnetic resonance imaging (fMRI) while performing the individual emotional Stroop task. A block design was used with the following word type conditions: neutral words, general negative words, and individual negative words. The individual negative words were recruited from a prior interview conducted with each participant.

## **Results**

While BPD patients had overall slower reaction times in the Stroop task compared to healthy controls, there was no increased slowing with emotional interference. Controls exhibited significant fMRI blood oxygenation level-dependent signal increases in the anterior cingulate cortex as well as in frontal cortex contrasting generally negative vs. neutral and individual negative vs. neutral conditions, respectively. BPD patients did not show equivalent signal changes.

## **Conclusions**

These results provide further evidence for a dysfunctional network of brain areas in BPD, including the anterior cingulate cortex and frontal brain regions. These areas are crucial for the regulation of stress and emotions, the core problems of BPD patients.

# **The increasing burden of depression**

*Lépine, J. P., & Briley, M.*

*Neuropsychiatric Disease and Treatment (2011), 7(Suppl 1), 3-7.*

## **Abstract**

Recent epidemiological surveys conducted in general populations have found that the lifetime prevalence of depression is in the range of 10% to 15%. Mood disorders, as defined by the World Mental Health and the *Diagnostic and Statistical Manual of Mental Disorders, 4th edition*, have a 12-month prevalence which varies from 3% in Japan to over 9% in the United States. A recent American survey found the prevalence of current depression to be 9% and the rate of current major depression to be 3.4%. All studies of depressive disorders have stressed the importance of the mortality and morbidity associated with depression. The mortality risk for suicide in depressed patients is more than 20-fold greater than in the general population. Recent studies have also shown the importance of depression as a risk factor for cardiovascular death. The risk of cardiac mortality after an initial myocardial infarction is greater in patients with depression and related to the severity of the depressive episode. Greater severity of depressive symptoms has been found to be associated with significantly higher risk of all-cause mortality including cardiovascular death and stroke. In addition to mortality, functional impairment and disability associated with depression have been consistently reported. Depression increases the risk of absenteeism and decreased workplace productivity, resulting in lowered income or unemployment. Absenteeism and presenteeism (being physically present at work but functioning suboptimally) have been estimated to result in a loss of \$36.6 billion per year in the United States. Worldwide projections by the World Health Organization for the year 2030 identify unipolar major depression as the leading cause of disease burden. This article is a brief overview of how depression affects the quality of life of the subject and is also a huge burden for both the family of the depressed patient and for society at large.

# The use of CAM and conventional treatments among primary care consulters with chronic musculoskeletal pain

*Artus, M., Croft, P., & Lewis, M.*

BMC Family Practice (2007) 8(1), May 4, 26.

## Background

Chronic musculoskeletal pain is the single most cited reason for use of complementary and alternative medicine (CAM). Primary care is the most frequent conventional medical service used by patients with pain in the UK. We are unaware, however, of a direct evidence of the extent of CAM use by primary care patients, and how successful they perceive it to be.

## Methods

Aims and objectives: To determine CAM use among patients with chronic musculoskeletal pain who have consulted about their pain in primary care. Study design: Face-to-face interview-based survey. Setting: Three general practices in North Staffordshire. Participants: Respondents to a population pain survey who had reported having musculoskeletal pain in the survey and who had consulted about their pain in primary care in the previous 12 months as well as consenting to further research and agreeing to an interview. Information was gathered about their pain and the use of all treatments for pain, including CAM, in the previous year.

## Results

The number of interviews completed was 138: 116 participants (84%) had used at least one CAM treatment for pain in the previous year; 65% were current users of CAM. The ratio of over-the-counter CAM use to care from a CAM provider was 3:2. The number of participants who had used conventional treatment was 111 (80%). Those using a combination of CAM and conventional treatment numbered 95 (69%). Glucosamine and fish oil were the most commonly used CAM treatments (38% and 35%, respectively). Most CAM treatments were scored on average as being helpful, and users indicated that they intended to use again 87% of the CAM treatments they had already used.

## Conclusion

We provide direct evidence that most primary care consulters with chronic musculoskeletal pain have used CAM in the previous year, usually in combination with conventional treatments. The high prevalence and wide range of users experiences of benefit and harm from CAM strengthen the argument for more research into this type of medicine to quantify benefit and assess safety. The observation that most users of conventional medicine also used CAM suggests a continuing need for more investigation of effective pain management in primary care.

# **Epigenetic regulation of the glucocorticoid receptor in human brain associates with childhood abuse**

*McGowan, P. O., Sasaki, A., D'Alessio, A. C., Dymov, S., Labonté, B., Szyf, M., Turecki, G., & Meaney, M. J.*

Nature Neuroscience (2009), 12(3), March, 342-348.

doi: 10.1038/nn.2270

## **Abstract**

Maternal care influences hypothalamic-pituitary-adrenal (HPA) function in the rat through epigenetic programming of glucocorticoid receptor expression. In humans, childhood abuse alters HPA stress responses and increases the risk of suicide. We examined epigenetic differences in a neuron-specific glucocorticoid receptor (*NR3C1*) promoter between postmortem hippocampus obtained from suicide victims with a history of childhood abuse and those from either suicide victims with no childhood abuse or controls. We found decreased levels of glucocorticoid receptor mRNA, as well as mRNA transcripts bearing the glucocorticoid receptor 1<sub>F</sub> splice variant and increased cytosine methylation of an *NR3C1* promoter. Patch-methylated *NR3C1* promoter constructs that mimicked the methylation state in samples from abused suicide victims showed decreased NGFI-A transcription factor binding and NGFI-A-inducible gene transcription. These findings translate previous results from rat to humans and suggest a common effect of parental care on the epigenetic regulation of hippocampal glucocorticoid receptor expression.

# **The cognitive activation theory of stress**

*Ursin, H., & Eriksen, H. R.*

Psychoneuroendocrinology (2004), 29(5), June, 567-592.

## **Abstract**

This paper presents a cognitive activation theory of stress (CATS), with a formal system of systematic definitions. The term “stress” is used for four aspects of stress: stress stimuli; stress experience; the nonspecific, general stress response; and experience of the stress response. These four meanings may be measured separately. The stress response is a general alarm in a homeostatic system, producing general and unspecific neurophysiological activation from one level of arousal to more arousal. The stress response occurs whenever there is something missing, for instance a homeostatic imbalance, or a threat to homeostasis and life of the organism. Formally, the alarm occurs when there is a discrepancy between what should be and what is—between the value a variable should have (set value [SV]) and the real value (actual value [AV]) of the same variable. The stress response, therefore, is an essential and necessary physiological response. The unpleasantness of the alarm is no health threat. However, if sustained, the response may lead to illness and disease through established pathophysiological processes (“allostatic load”). The alarm elicits specific behaviors to cope with the situation. The level of alarm depends on expectancy of the outcome of stimuli and the specific responses available for coping. Psychological defense is defined as a distortion of stimulus expectancies. Response outcome expectancies are defined as positive, negative, or none, to the available responses. This offers formal definitions of coping, hopelessness, and helplessness that are easy to operationalize in humans and in other animals. It is an essential element of CATS that only when coping is defined as positive outcome expectancy does the concept predict relations to health and disease.

# **Time, touch, and compassion: Effects on autonomic nervous system and well-being**

*Shaltout, H. A., Tooze, J. A., Rosenberger, E., & Kemper, K. J.*

Explore: The Journal of Science and Healing. (2012), 8(3), May-June, 177-184.

## **Objective**

Compassion is critical for complementary and conventional care, but little is known about its direct physiologic effects. This study tested the feasibility of delivering two lengths of time (10 and 20 minutes) and two strategies (tactile and nontactile) for a practitioner to nonverbally communicate compassion to subjects who were blind to the interventions.

## **Methods**

Healthy volunteers were informed that we were testing the effects of time and touch on the autonomic nervous system. Each subject underwent five sequential study periods in one study session: (1) warm-up; (2) control—with the practitioner while both read neutral material; (3) rest; (4) intervention—with practitioner meditating on loving-kindness toward the subject; and (5) rest. Subjects were randomized to receive one of four interventions: (1) 10 minutes tactile; (2) 20 minutes tactile; (3) 10 minutes nontactile; or (4) 20 minutes nontactile. During all interventions, the practitioner meditated on loving-kindness toward the subject. For tactile interventions, the practitioner touched subjects on arms, legs, and hands; for nontactile interventions, the practitioner pretended to read. Subjects' autonomic activity, including heart rate, was measured continuously. Subjects completed visual analog scales for well-being, including relaxation and peacefulness, at warm-up, postcontrol, immediately post intervention, and after the postintervention rest and were asked about what they and the practitioner had done during each study period.

## **Results**

The 20 subjects' mean age was  $24.3 \pm 4$  years; 16 were women. The practitioner maintained a meditative state during all interventions as reflected in lower respiratory rate, and subjects remained blind to the practitioner's meditative activity. Overall, interventions significantly decreased heart rate ( $p < .01$ ), and although other changes did not reach statistical significance, they were in the expected direction, with generally greater effects for the tactile vs. the nontactile strategies and for the 20-minute vs. the 10-minute doses.

## **Conclusions**

Two strategies are feasible for blinding subjects to nonverbal communication of compassion; even with blinding, nonverbal communication of compassion affects subjects' autonomic nervous systems. These results should be replicated in larger samples, including patient populations, and mechanisms sought to explain observed effects. Compassion is not only good care; it may also be good medicine.

# **Complementary medicine for fatigue and cortisol variability in breast cancer survivors**

*Jain, S., Pavlik, D., Distefan, J., Bruyere, R. L., Acer, J., Garcia, R., Coulter, I., Ives, J., Roesch, S. C., Jonas, W., & Mills, P. J.*

*Cancer* (2012), 118(3), February 1, 777-87.

doi: 10.1002/cncr.26345

## **Background**

Fatigue is a chief complaint in cancer patients, and warrants effective treatment. Biofield therapies are complementary medicine approaches used by cancer populations. There is little information about their efficacy.

## **Methods**

This blinded, randomized controlled trial examined the effects of 4 weeks (eight 1-hour sessions) of biofield healing compared with mock healing and a waitlist control group on fatigue in 76 fatigued breast cancer survivors (stages I-IIIA). Secondary outcomes were diurnal cortisol variability (via estimates of cortisol slope), depression, and quality of life (QOL). Treatment belief was assessed to explore whether belief predicted outcomes. Data were analyzed via hierarchical linear modeling.

## **Results**

There were no significant differences between biofield healing and mock healing on belief; 75% thought they received biofield healing. Compared with controls, biofield healing significantly decreased total fatigue ( $P < .0005$ , Cohen's  $d = 1.04$ ), as did mock healing ( $P = .02$ , Cohen's  $d = 0.68$ ), with no significant differences between biofield healing and mock healing. Cortisol slope significantly decreased for biofield healing versus both mock healing and control ( $P < .04$  in both cases; Cohen's  $d = 0.58$ ). Belief predicted changes in QOL over and above group ( $P = .004$ , Cohen's  $d = 0.84$ ). Belief did not impact fatigue or cortisol variability.

## **Conclusions**

Nonspecific factors are important in responses to biofield interventions for fatigue. Belief predicts QOL responses but not fatigue or cortisol variability. Biofield therapies increase cortisol variability independent of belief and other nonspecific factors. There is a need to further examine the effects of specific processes of biofield healing on outcomes for cancer populations.

# **DNA and cell resonance: Magnetic waves enable cell communication**

*Meyl, K.*

DNA and Cell Biology (2012), 31(4), April, 422-426.

## **Abstract**

DNA generates a longitudinal wave that propagates in the direction of the magnetic field vector. Computed frequencies from the structure of DNA agree with those of the predicted biophoton radiation. The optimization of efficiency by minimizing the conduction losses leads to the double-helix structure of DNA. The vortex model of the magnetic scalar wave not only covers many observed structures within the nucleus perfectly, but also explains the hyperboloid channels in the matrix when two cells communicate with each other. Potential vortexes are an essential component of a scalar waves, as discovered in 1990. The basic approach for an extended field theory was confirmed in 2009 with the discovery of magnetic monopoles. For the first time, this provides the opportunity to explain the physical basis of life not only from the biological discipline. Nature covers the whole spectrum of known scientific fields of research, and interdisciplinary understanding is required to explain its complex relationships. The characteristics of the potential vortex are significant. With its concentration effect, it provides for miniaturization down to a few nanometers, which allows enormously high information density in the nucleus. With this first introduction of the magnetic scalar wave, it becomes clear that such a wave is suitable to use genetic code chemically stored in the base pairs of the genes and electrically modulate them, so as to "piggyback" information from the cell nucleus to another cell. At the receiving end, the reverse process takes place and the transported information is converted back into a chemical structure. The necessary energy required to power the chemical process is provided by the magnetic scalar wave itself.

# **Single session reduction of the intensity of traumatic memories in abused adolescents: A randomized controlled trial**

*Church, D., Piña, O., Reategui, C., & Brooks, A. J.*

Traumatology (2012), 18(3), 73-79.

doi: 10.1177/1534765611426788

## **Abstract**

The population for this study was drawn from an institution to which juveniles are sent by court order if they are found by a judge to be physically or psychologically abused at home. Sixteen males, aged 12-17, were randomized into two groups. They were assessed using subjective units of distress (SUD), and the Impact of Events Scale (IES), which measures two components of PTSD: intrusive memories and avoidance symptoms. The experimental group was treated with a single session of EFT (Emotional Freedom Techniques), a brief and novel exposure therapy that has been found efficacious in reducing PTSD and co-occurring psychological symptoms in adults, but has not been subject to empirical assessment in juveniles. The wait-list control group received no treatment. Participants were reassessed 30 days later. No improvement occurred in the wait list (IES total mean pre = 32 SD  $\pm 4.82$ , post = 31 SD  $\pm 3.84$ ). Posttest scores for all experimental-group participants improved to the point where all were nonclinical on the total score, as well as the intrusive and avoidant symptom subscales, and SUD (IES total mean pre = 36 SD  $\pm 4.74$ , post = 3 SD  $\pm 2.60$ ,  $p < .001$ ). These results are consistent with those found in adults, and indicates the utility of single-session EFT as a fast and effective intervention for reducing psychological trauma in juveniles.

# **Individual versus group therapy for obesity: Effects of matching participants to their treatment preferences**

*Renjilian, D. A., Perri, M. G., Nezu, A.M., McKelvey, W. F., Shermer, R. L., & Anton, S. D.*

Journal of Consulting and Clinical Psychology (2001), 69(4), August, 717-721.

## **Abstract**

This study examined the effects of matching participants to treatments on the basis of their preferences for either individual or group therapy for obesity. Seventy-five obese adults who expressed a clear preference for either individual or group therapy were randomly assigned to either their preferred or their nonpreferred treatment modality within a 2 (individual vs. group therapy)  $\times$  2 (preferred vs. nonpreferred modality) factorial design. At posttreatment, group therapy produced significantly greater reductions in weight and body mass than individual therapy, and no significant effects were observed for treatment preference or the interaction for treatment preference by type of therapy. All treatment conditions showed equivalent improvements in psychological functioning. These findings suggest that group therapy produces greater weight loss than individual therapy, even among those clients who express a preference for individual treatment.

# **Healing Touch with Guided Imagery for PTSD in returning active duty military: A randomized controlled trial**

*Jain, S., McMahon, G. F., Hasen, P., Kozub, M. P., Porter, V., King, R., & Guarneri, E. M.*  
Military Medicine (2012), 177(9), September, 1015-1021.

## **Abstract**

Posttraumatic stress disorder (PTSD) remains a significant problem in returning military and warrants swift and effective treatment. We conducted a randomized controlled trial to determine whether a complementary medicine intervention (Healing Touch with Guided Imagery [HT+GI]) reduced PTSD symptoms as compared to treatment as usual (TAU) in returning combat-exposed active duty military with significant PTSD symptoms. Active duty military ( $n = 123$ ) were randomized to six sessions (within 3 weeks) of HT+GI versus TAU. The primary outcome was PTSD symptoms; secondary outcomes were depression, quality of life, and hostility. Repeated measures analysis of covariance with intent-to-treat analyses revealed statistically and clinically significant reduction in PTSD symptoms ( $p < 0.0005$ , Cohen's  $d = 0.85$ ) as well as depression ( $p < 0.0005$ , Cohen's  $d = 0.70$ ) for HT+GI vs. TAU. HT+GI also showed significant improvements in mental quality of life ( $p = 0.002$ , Cohen's  $d = 0.58$ ) and cynicism ( $p = 0.001$ , Cohen's  $d = 0.49$ ) vs. TAU. Participation in a complementary medicine intervention resulted in a clinically significant reduction in PTSD and related symptoms in a returning, combat-exposed active duty military population. Further investigation of GT and biofield therapy approaches for mitigating PTSD in military populations is warranted.

# **Viewing a humorous film decreases IgE production by seminal B cells from patients with atopic eczema**

*Kimata, H.*

Journal of Psychosomatic Research (2009), 66(2), February, 173-175.

## **Objective**

Sperms induced IgE production by seminal B cells from patients with atopic eczema via interaction of B cells with galectin-3 on sperms. We studied the effect of viewing a humorous film on IgE production by seminal B cells cultured with sperms.

## **Methods**

Twenty-four male patients with atopic eczema viewed a humorous film (*Modern Times*, featuring Charlie Chaplin). Just before and immediately after viewing, semen was collected, and seminal B cells and sperms were purified. Seminal B cells were cultured with sperms and IgE production was measured, while expression of galectin-3 on sperms was assessed.

## **Results**

After viewing the humorous film, IgE production by B cells cultured with sperms was significantly decreased. Moreover, expression of galectin-3 on sperms was reduced.

## **Conclusion**

Viewing a humorous film reduced galectin-3 expression on sperms, which in turn decreased IgE production by seminal B cells cultured with sperms. These results indicate that viewing a humorous film may be helpful for the study and treatment of local IgE production and allergy in the reproductive tract.

# **Integrative Mental Health (IMH): Paradigm, research, and clinical practice**

*Lake, J., Helgason, C., & Sarris, J.*

Explore: The Journal of Science and Healing (2012), 8(1), January, 50-57.

## **Abstract**

This paper provides an overview of the rapidly evolving paradigm of “Integrative Mental Health (IMH).” The paradigm of contemporary biomedical psychiatry and its contrast to non-allopathic systems of medicine is initially reviewed, followed by an exploration of the emerging paradigm of IMH, which aims to reconcile the bio-psychosocio-spiritual model with evidence-based methods from traditional healing practices. IMH is rapidly transforming conventional understandings of mental illness and has significant positive implications for the day-to-day practice of mental health care. IMH incorporates mainstream interventions such as pharmacologic treatments, psychotherapy, and psychosocial interventions, as well as alternative therapies such as acupuncture, herbal and nutritional medicine, dietary modification, meditation, etc. Two recent international conferences in Europe and the United States show that interest in integrative mental health care is growing rapidly. In response, the International Network of Integrative Mental Health (INIMH; [www.INIMH.org](http://www.INIMH.org)) was established in 2010 with the objective of creating an international network of clinicians, researchers, and public health advocates to advance a global agenda for research, education, and clinical practice of evidence-based integrative mental health care. The paper concludes with a discussion of emerging opportunities for research in IMH, and an exploration of potential clinical applications of integrative mental health care.

# **Treatment of panic disorder: Live therapy vs. self-help via the Internet**

*Carlbring, P., Nilsson-Ihrfelt, E., Waara, J., Kollenstam, C., Buhrman, M., Kaldo, V., Söderberg, M., Ekselius, L., & Andersson, G.*

Behaviour Research and Therapy (2005), 43(10), October, 1321-1333.

## **Abstract**

A randomized trial was conducted comparing 10 individual weekly sessions of cognitive behavior therapy for panic disorder (PD) with or without agoraphobia with a 10-module self-help program on the Internet. After confirming the PD diagnosis with an in-person structured clinical interview (SCID), 49 participants were randomized. Overall, the results suggest that Internet-administered self-help plus minimal therapist contact via e-mail can be equally effective as traditional individual cognitive behavior therapy. Composite within-group effect sizes were high in both groups, while the between-group effect size was small (Cohen's  $d = 1.6$ ). One-year follow-up confirmed the results, with a within-group effect size of Cohen's  $d = 0.80$  for the Internet group and  $d = 0.93$  for the live group. The results from this study generally provide evidence to support the continued use and development of Internet-distributed self-help programs.

# **Effect of compassion meditation on neuroendocrine, innate immune and behavioral responses to psychosocial stress**

*Pace, T. W. W., Negi, L. T., Adame, D. D., Cole, S. P., Sivilli, T. I., Brown, T. D., Issa, M. J., & Raison, C. L.*

*Psychoneuroendocrinology (2009), 34(1), January, 87-98.*

## **Abstract**

Meditation practices may impact physiological pathways that are modulated by stress and relevant to disease. While much attention has been paid to meditation practices that emphasize calming the mind, improving focused attention, or developing mindfulness, less is known about meditation practices that foster compassion. Accordingly, the current study examined the effect of compassion meditation on innate immune, neuroendocrine, and behavioral responses to psychosocial stress and evaluated the degree to which engagement in meditation practice influenced stress reactivity. Sixty-one healthy adults were randomized to 6 weeks of training in compassion meditation ( $n = 33$ ) or participation in a health discussion control group ( $n = 28$ ) followed by exposure to a standardized laboratory stressor (Trier social stress test [TSST]). Physiologic and behavioral responses to the TSST were determined by repeated assessments of plasma concentrations of interleukin (IL)-6 and cortisol as well as total distress scores on the Profile of Mood States (POMS). No main effect of group assignment on TSST responses was found for IL-6, cortisol, or POMS scores. However, within the meditation group, increased meditation practice was correlated with decreased TSST-induced IL-6 ( $r[p] = -0.46, p = 0.008$ ) and POMS distress scores ( $r[p] = -0.43, p = 0.014$ ). Moreover, individuals with meditation practice times above the median exhibited lower TSST-induced IL-6 and POMS distress scores compared to individuals below the median, who did not differ from controls. These data suggest that engagement in compassion meditation may reduce stress-induced immune and behavioral responses, although future studies are required to determine whether individuals who engage in compassion meditation techniques are more likely to exhibit reduced stress reactivity.

# **Relative effects of CBT and pharmacotherapy in depression versus anxiety: Is medication somewhat better for depression, and CBT somewhat better for anxiety?**

*Roshanaei-Moghaddam, B., Pauly, M. C., Atkins, D. C., Baldwin, S. A., Stein, M. B., & Roy-Byrne, P.*

Depression and Anxiety (2011), 28(7), July, 560-567.

doi: 10.1002/da.20829.

## **Background**

Little is known about whether cognitive behavioral therapy (CBT) or pharmacotherapy is relatively more advantageous for depressive versus anxiety disorders.

## **Methods**

We conducted a meta-analysis wherein we searched electronic databases and references to select randomized controlled studies comparing CBT and pharmacotherapy, with or without placebo, in adults with major depressive or anxiety disorders. The primary effect size was calculated from disorder-specific outcome measures as the difference between CBT and pharmacotherapy outcomes (i.e., positive effect size favors CBT; negative effect size favors pharmacotherapy).

## **Results**

Twenty-one anxiety ( $N = 1,266$ ) and 21 depression ( $N = 2,027$ ) studies comparing medication to CBT were included. Including all anxiety disorders, the overall effect size was .25 (95% CI: -0.02, 0.55,  $p = .07$ ). Effects for panic disorder significantly favored CBT over medications (.50, 95% CI: 0.02, 0.98). Obsessive-compulsive disorder showed similar effects-sizes, though not statistically significant (.49, 95% CI: -0.11, 1.09). Medications showed a nonsignificant advantage for social anxiety disorder (-.22, 95% CI: -0.50, 0.06). The overall effect size for depression studies was .05 (95% CI: -0.09, 0.19), with no advantage for medications or CBT. Pooling anxiety disorder and depression studies, the omnibus comparison of the relative difference between anxiety and depression in effectiveness for CBT versus pharmacotherapy pointed to a nonsignificant advantage for CBT in anxiety versus depression ( $B = .14$ , 95% CI: -0.14, 0.43).

## **Conclusions**

On balance, the evidence presented here indicates that there are at most very modest differences in effects of CBT versus pharmacotherapy in the treatment of anxiety versus depressive disorders. There seems to be larger differences between the anxiety disorders in terms of their relative responsiveness to pharmacotherapy versus CBT.

# **A comparison of OEF and OIF veterans and Vietnam veterans receiving cognitive processing therapy**

*Chard, K. M., Schumm, J. A., Owens, G. P., & Cottingham, S. M.*

Journal of Traumatic Stress (2010), 23(1), February, 25-32.

## **Abstract**

The current wars in Iraq and Afghanistan are producing large numbers of veterans who have experienced a variety of combat stressors. The potential impact of combat exposure has been established, including significant rates of posttraumatic stress disorder (PTSD). Limited research has examined potential differences between veteran groups and one study to date has examined differences between eras in terms of treatment response. The present study seeks to examine cohort differences between Operation Enduring Freedom and Operation Iraqi Freedom veterans and Vietnam veterans ( $N = 101$ ) before and after completing treatment for PTSD using cognitive processing therapy. Findings suggest that veterans from these eras responded differently to treatment and there are multiple variables that should be considered in future cohort studies.

# **A voice-based automated system for PTSD screening and monitoring**

*Xu, R., Mei, G., Zhang, G., Gao, P., Judkins, T., Cannizzaro, M., & Li, J.*

Studies in Health Technology and Informatics (2012), 173, 552-558.

## **Abstract**

Comprehensive evaluation of PTSD includes diagnostic interviews, self-report testing, and physiological reactivity measures. It is often difficult and costly to diagnose PTSD due to patient access and the variability in symptoms presented. Additionally, potential patients are often reluctant to seek help due to the stigma associated with the disorder. A voice-based automated system that is able to remotely screen individuals at high risk for PTSD and monitor their symptoms during treatment has the potential to make great strides in alleviating the barriers to cost effective PTSD assessment and progress monitoring. In this paper we present a voice-based automated Tele-PTSD Monitor (TPM) system currently in development, designed to remotely screen, and provide assistance to clinicians in diagnosing PTSD. The TPM system can be accessed via a Public Switched Telephone Network (PSTN) or the Internet. The acquired voice data are then sent to a secure server to invoke the PTSD Scoring Engine (PTSD-SE) where a PTSD mental health score is computed. If the score exceeds a predefined threshold, the system will notify clinicians (via e-mail or short message service) for confirmation and/or an appropriate follow-up assessment and intervention. The TPM system requires only voice input and performs computer-based automated PTSD scoring, resulting in low cost and easy field deployment. The concept of the TPM system was supported using a limited dataset with an average detection accuracy of up to 95.88%.

# **Exposure therapy for PTSD delivered to veterans via telehealth: Predictors of treatment completion and outcome and comparison to treatment delivered in person**

*Gros, D. F., Yoder, M., Tuerk, P. W., Lozano, B. E., & Acierno, R.*

Behavior Therapy (2011), 42(2), June, 276-283.

## **Abstract**

Recent research has focused on the effectiveness of evidence-based psychotherapy delivered via telehealth services. Unfortunately, to date, the majority of studies employ very small samples and limited predictor and moderator variables. To address these concerns and further replicate and extend the literature on telehealth, the present study investigated the effectiveness of 12-session exposure therapy delivered either via telehealth ( $n = 62$ ) or in person ( $n = 27$ ) in veterans with posttraumatic stress disorder (PTSD). Findings demonstrated that although older veterans and Vietnam veterans were more likely to complete the telehealth treatment, telehealth findings were not influenced by patient age, sex, race, combat theater, or disability status. Exposure therapy delivered via telehealth was effective in reducing the symptoms of PTSD, anxiety, depression, stress, and general impairment with large effect sizes. Interestingly, exposure therapy via telehealth was less effective than exposure therapy delivered in person; however, lack of random assignment to condition limits conclusions of differential effectiveness. Overall, these findings support the utility of telehealth services to provide effective, evidence-based psychotherapies.

# **Efficacy of telehealth treatments for posttraumatic stress-related symptoms: A meta-analysis**

*Sloan, D. M., Gallagher, M. W., Feinstein, B. A., Lee, D. J., & Pruneau, G. M.*

Cognitive Behaviour Therapy (2011) May 1, 1-15. (Epub ahead of print.)

## **Abstract**

This meta-analysis summarizes the findings of outcome research on the degree to which telehealth treatments reduce posttraumatic stress disorder (PTSD)-related symptoms. In a search of the literature, 13 studies were identified for inclusion in the meta-analysis and were coded for relevant variables. A total of 725 participants were included. Results indicate that telehealth treatments are associated with significant pre- to postreduction in PTSD symptoms ( $d = 0.99$ , 95% confidence interval [CI]: 0.87-1.11,  $p < .001$ ), and result in superior treatment effects relative to a wait-list comparison condition ( $d = 1.01$ , 95% CI: 0.76-1.26,  $p < .001$ ). However, no significant findings were obtained for telehealth intervention relative to a supportive counseling telehealth comparison condition ( $d = 0.11$ , 95% CI: -0.38 to 0.60,  $p = .67$ ), and telehealth intervention produced an inferior outcome relative to a face-to-face intervention ( $d = -0.68$ , 95% CI: -0.39 to -0.98,  $p < .001$ ). Findings for depression symptom severity outcome were generally consistent with those for PTSD outcome. Telehealth interventions produced a significant within-group effect size ( $d = 0.98$ , 95% CI: 0.86 to 1.10,  $p < .001$ ) and superior effect relative to wait-list comparison condition ( $d = 0.80$ , 95% CI: 0.56-1.05,  $p < .001$ ). Relative to face-to-face interventions, telehealth treatments produced comparable depression outcome effects ( $d = 0.13$ , 95% CI: -0.55 to 0.28,  $p = .53$ ). Taken together, these findings support the use of telehealth treatments for individuals with PTSD-related symptoms.

# **Home-based telehealth to deliver evidence-based psychotherapy in veterans with PTSD**

*Strachan, M., Gros, D. F., Yuen, E., Ruggiero, K. J., Foa, E. B., & Acierno, R.*  
Contemporary Clinical Trials (2011), 33(2), March, 402-409.

## **Abstract**

Although medical service delivery via home-based telehealth technology (HBT) is gaining wider acceptance in managing chronic illnesses such as diabetes or chronic obstructive pulmonary disease, few studies have tested HBT applications of psychotherapy. Clinicians, administrators, and researchers question whether delivering psychotherapeutic services to patients in their homes via video-conferencing technology compromises patient safety, potency of treatment, or data security. Despite these concerns, HBT service delivery may increase access to evidence-based psychotherapies for veterans with posttraumatic stress disorder (PTSD), who may be less willing or less able to receive weekly treatment at a VA medical center or outpatient clinic due to symptom severity or other similar barriers to care. Indeed, although combat-exposed service members endorse high rates of psychiatric disorders, few appear to initiate mental health services or receive an adequate dose of treatment. Thus, using HBT technologies to administer evidence-based therapies remains uncharted territory in both the clinical and research arenas. This manuscript describes an ongoing four-year randomized controlled trial comparing in-person Prolonged Exposure (PE)—a specialized evidence-based psychotherapy for PTSD—and PE delivered via HBT, with a particular focus on the selection, application, and strengths/weaknesses of HBT procedures.

# **A pilot study of prolonged exposure therapy for posttraumatic stress disorder delivered via telehealth technology**

*Tuerk, P. W., Yoder, M., Ruggiero, K. J., Gros, D. F., & Acierno, R.*  
Journal of Traumatic Stress (2010), 23(1), February, 116-123.

## **Abstract**

The authors present a pilot study of 12 veterans diagnosed with combat-related PTSD and treated with prolonged exposure therapy (PE) via telehealth technology. A reference sample of 35 combat veterans treated with in-person PE in the same clinic is also included for a comparison. Feasibility and clinical outcomes of interest include technical performance and practicality of the telehealth equipment, patient safety, treatment completion rates, number of sessions required for termination, and clinical outcomes. Results indicated large statistically significant decreases in self-reported pathology for veterans treated with PE via telehealth technology. Preliminary results support the feasibility and safety of the modality. Suggestions for the implementation of PE via telehealth technology are discussed.

# **A brief self-guided telehealth intervention for post-traumatic stress disorder in combat veterans: A pilot study**

*Possemato, K., Ouimette, P., & Knowlton, P.*  
Journal of Telemedicine and Telecare (2011), 17(5), 245-250.

## **Abstract**

To engage more US combat veterans in PTSD treatment, we offered a psychological intervention that could be initiated in primary care and completed using the Internet. Participants ( $n = 31$ ) were randomized to complete either Written Emotional Disclosure (WED) or time management narratives on a secure Internet website. In the WED group, participants wrote about their thoughts and emotions regarding one traumatic combat experience in three 20-minute sessions. Writing instructions encouraged exposure to traumatic memories and cognitive processing of trauma. The intervention was found to be feasible and safe to implement. Although follow-up assessments did not reveal significant group differences in PTSD symptoms, half of the WED participants reported symptom reductions. Content analyses revealed that participants who expressed more emotion and cognitions were significantly more likely to experience decreased PTSD symptoms. WED may have promise as a brief intervention for veterans with PTSD.

# **Implementation of a posttraumatic stress disorder mentoring program to improve treatment services**

*Bernardy, N. C., Hamblen, J. L., Friedman, M. J., Ruzek, J. I., & McFall, M. E.*

*Psychological Trauma: Theory, Research, Practice, and Policy* (2011), 3(3), 292-299.

doi: 10.1037/a0024847

## **Abstract**

Three years ago the Department of Veterans Affairs (VA) charged the National Center for PTSD (NCPTSD) to develop a mentoring program to train directors of specialized PTSD clinical programs in effective management skills. There were three reasons for this. First, the number of veterans from the Afghanistan and Iraq conflicts coming to the VA for PTSD treatment was rapidly increasing. Second, a major augmentation in mental health staffing had brought many new clinicians to the VA who were unfamiliar with war-zone-related PTSD and with the VA system of care at a time of changing administrative requirements. Third, the clinical complexity of these veterans required additional mentoring because their PTSD was often associated with depression, mild traumatic brain injury, substance use, chronic pain, aggressive behavior, and/or insomnia. The resulting PTSD Mentoring Program created a national network of program directors to disseminate and implement best management practices by supporting local experts in their mentoring of other VA PTSD program directors. This article describes the implementation of the PTSD Mentoring Program and examines methods of how other programs can successfully use and adapt the mentoring model. A description of what is working and where obstacles still exist for the program is provided. Our experience with the program supports the use of peer mentoring as a method to offer educational training on trauma in different settings and using different modalities.

# **Social constraints, posttraumatic cognitions, and posttraumatic stress disorder in treatment-seeking trauma survivors: Evidence for a social-cognitive processing model**

*Belsher, B. E.*

Palo Alto University dissertation, December 2011.

## **Abstract**

Considerable research has emerged to explore the factors that contribute to the development of posttraumatic stress disorder (PTSD). A Social Cognitive Processing (SCP) model of adjustment posits that limited opportunities to interpersonally process stressful events may lead to a greater frequency and intensity of symptoms and contribute to the development of clinically significant impairment. While this model has been applied to medical populations adjusting to health-related stressors, limited research has applied this model to a heterogeneous group of trauma survivors likely meeting diagnostic criteria for PTSD. The current study extends the literature by applying a Social Cognitive Processing model of adjustment to a community sample of trauma survivors.

Based on the SCP model, the current study sought to explore the influence of both social-contextual and cognitive factors on the development of PTSD. Thirty-nine participants who had experienced a trauma within the past 2 years and were seeking treatment at a university-based trauma clinic completed pre-treatment baseline assessments, including a sociodemographic questionnaire and self-report measures of social constraints, negative posttraumatic cognitions, and PTSD symptoms. Regression analyses indicated that greater social constraints and greater negative posttraumatic cognitions were associated with greater PTSD symptoms. Additionally, there was a significant positive relationship between social constraints and negative posttraumatic cognitions. Further analysis supported a mediational model in which the relationship between social constraints and PTSD was partially accounted for by negative posttraumatic cognitions. These findings lend further support for the SCP model of adjustment for trauma survivors. Inhibiting social environments may impede trauma processing and prompt more distressing posttraumatic cognitions that underlie PTSD.

# **Benefits of Reiki therapy for a severely neutropenic patient with associated influences on a true random number generator**

*Morse, M. L., & Beem, L. W.*

Journal of Alternative and Complementary Medicine (2011), 17(12), December, 1181-1190.

## **Background**

Reiki therapy is documented for relief of pain and stress. Energetic healing has been documented to alter biologic markers of illness such as hematocrit. True random number generators are reported to be affected by energy healers and spiritually oriented conscious awareness.

## **Methods**

The patient was a then 54-year-old severely ill man who had hepatitis C types 1 and 2 and who did not improve with conventional therapy. He also suffered from obesity, the metabolic syndrome, asthma, and hypertension. He was treated with experimental high-dose interferon/ribavirin therapy with resultant profound anemia and neutropenia. Energetic healing and Reiki therapy was administered initially to enhance the patient's sense of well-being and to relieve anxiety. Possible effects on the patient's absolute neutrophil count and hematocrit were incidentally noted. Reiki therapy was then initiated at times of profound neutropenia to assess its possible effect on the patient's absolute neutrophil count (ANC). Reiki and other energetic healing sessions were monitored with a true random number generator (RNG).

## **Results**

Statistically significant relationships were documented between Reiki therapy, a quieting of the electronically created white noise of the RNG during healing sessions, and improvement in the patient's ANC. The immediate clinical result was that the patient could tolerate the high-dose interferon regimen without missing doses because of absolute neutropenia. The patient was initially a late responder to interferon and had been given a 5% chance of clearing the virus. He remains clear of the virus 1 year after treatment.

## **Conclusions**

The association between changes in the RNG, Reiki therapy, and a patient's ANC is the first to the authors' knowledge in the medical literature. Future studies assessing the effects of energetic healing on specific biologic markers of disease are anticipated. Concurrent use of a true RNG may prove to correlate with the effectiveness of energetic therapy.

# **A pilot study of positive expectations and focused attention via a new protocol for optimizing therapeutic hypnosis and psychotherapy assessed with DNA microarrays: The Creative Psychosocial Genomic Healing Experience**

*Rossi, E., Iannotti, S., Cozzolino, M., Castiglione, S., Cicatelli, A., & Rossi, K.*

*Journal of Sleep and Hypnosis (2008), 10(2).*

## **Abstract**

We extend the use of DNA microarrays to explore a new psychotherapeutic therapeutic protocol, the Creative Psychosocial Genomic Healing Experience, an easy-to-learn approach to facilitating therapeutic hypnosis, psychotherapy, rehabilitation, meditation, and pastoral counseling. This pilot study assessed the hypothesis that a top-down creatively oriented positive human experience can modulate gene expression on the molecular level. A DNA microarray data analysis of the white blood cells of three human subjects was performed immediately before, 1 hour after, and 24 hours after the Creative Psychosocial Genomic Healing Experience. We documented changes in the expression of 15 early response genes within 1 hour that apparently initiated a further cascade of 77 genes 24 hours later. This could provide the mind/molecular genomic foundation of new therapeutic models for optimizing human consciousness, health, and well-being via therapeutic hypnosis, psychotherapy, pastoral counseling, and psychiatry. This proof-of-principle pilot study now requires cross validation with more subjects with a variety of diagnostic classifications to document the validity and reliability of using DNA microarrays to assess our new creative psychosocial genomic therapeutic protocol in a variety of cultures.

## **Social regulation of the cortisol levels in early human development**

*Gunnar, M. R., & Donzella, B.*

*Psychoneuroendocrinology (2002), 27(1-2), January-February, 199-220.*

## **Abstract**

Other papers in this special edition provide evidence to implicate activity of the limbic hypothalamic-pituitary-adrenocortical (L-HPA) system in the etiology of drug and alcohol abuse. Furthermore, studies in rodents and primates suggest that responsivity and regulation of this system later in life may be shaped by social experiences during early development. Cortisol is the major hormonal product of the L-HPA system in humans. Although it provides only a partial understanding of the activity of this neuroendocrine axis, its regulation may bear importantly on human growth and development. We review developmental studies of cortisol and behavior in human children, birth to approximately 5 years of age. We describe the development of social buffering of cortisol responses that produces a functional analogue of the rodent stress hyporesponsive period by the time children are about 12 months of age. We further describe the sensitivity of cortisol activity to variations in care quality among infants and toddlers, along with evidence that children with negative emotional temperaments may be most likely to exhibit elevations in cortisol under conditions of less than optimal care. Finally, the few studies of cortisol activity under conditions of neglectful and abusive care of young children are considered, noting that these often have yielded evidence of reduced rather than increased cortisol levels.

# **The link between childhood trauma and depression: Insights from HPA axis studies in humans**

*Heim, C., Newport, D. J., Mietzko, T., Miller, A. H., & Nemeroff, C. B.*  
Psychoneuroendocrinology (2004), 33(6), July, 693-710.

## **Abstract**

Childhood trauma is a potent risk factor for developing depression in adulthood, particularly in response to additional stress. We here summarize results from a series of clinical studies suggesting that childhood trauma in humans is associated with sensitization of the neuroendocrine stress response, glucocorticoid resistance, increased central corticotropin-releasing factor (CRF) activity, immune activation, and reduced hippocampal volume, closely paralleling several of the neuroendocrine features of depression. Neuroendocrine changes secondary to early-life stress likely reflect risk to develop depression in response to stress, potentially due to failure of a connected neural circuitry implicated in emotional, neuroendocrine, and autonomic control to compensate in response to challenge. However, not all of depression is related to childhood trauma and our results suggest the existence of biologically distinguishable subtypes of depression as a function of childhood trauma that are also responsive to differential treatment. Other risk factors, such as female gender and genetic dispositions, interfere with components of the stress response and further increase vulnerability for depression. Similar associations apply to a spectrum of other psychiatric and medical disorders that frequently coincide with depression and are aggravated by stress. Taken together, this line of evidence demonstrates that psychoneuroendocrine research may ultimately promote optimized clinical care and help prevent the adverse outcomes of childhood trauma.

## **Call for Research Papers in Energy Psychology & Energy Medicine**

The Association for Comprehensive Energy Psychology will be hosting its third annual Research Symposium. To this end, we are accepting research papers in the fields of Energy Psychology and Energy Medicine to be presented at our international conference on Thursday, May 30, 2013 in Reston, VA. We are seeking original empirical research, clinical single subject case studies, experimental design studies, randomized controlled studies, and theoretical papers. Clinicians, new researchers and graduate students are especially encouraged to present. The deadline for submissions is February 1, 2013.

For submission details, go to [www.energypsych.org/research](http://www.energypsych.org/research).  
Send submissions via email to: John Freedom, research\_committee@energypsych.org.

# EFT

EMOTIONAL FREEDOM TECHNIQUES



# GET CERTIFIED IN EFT!

*EFT certification is a rewarding experience. It opens up new career horizons, as well as personal healing opportunities.*

The EFT certification program provides in-depth training in Clinical EFT, which has been validated in over 20 clinical trials, and provides a step-by-step blueprint for mastering the fundamentals essential to the successful practice of EFT. Certified practitioners are listed on the EFT web site,

and the use of certified EFT practitioners is promoted in video, print, and online media.  
**To enroll click "Certification" at [www.EFTUniverse.com](http://www.EFTUniverse.com)**

*"This training program...will teach you how to use this important procedure and many of the subtleties of its application very well."*

—David Feinstein, Ph.D.  
*The Energy Healer's Ethics Handbook*

*"Find practitioners at [www.EFTUniverse.com](http://www.EFTUniverse.com)."*

— O: The Oprah Magazine  
(November 2010)